USDA United States Department of Agriculture

Natural Resources Conservation Service

In cooperation with the Tennessee Agricultural Experiment Station, the Tennessee Department of Agriculture, and the McMinn County Board of Commissioners

Soil Survey of McMinn County, Tennessee

How To Use This Soil Survey

General Soil Map

The general soil map, which is a color map, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

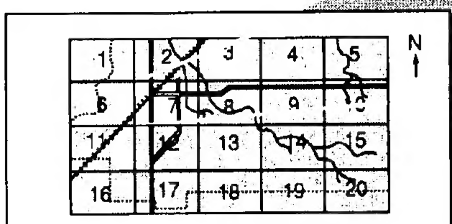
Detailed Soil Maps

The detailed soil maps can be useful in planning the use and management of small areas.

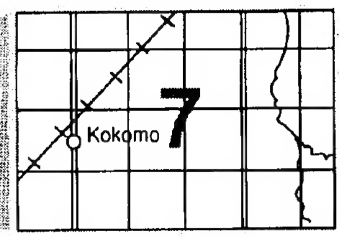
To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet and turn to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.



INDEX TO MAP SHEETS



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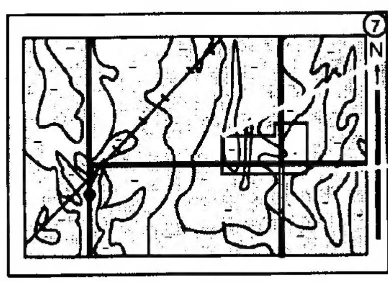

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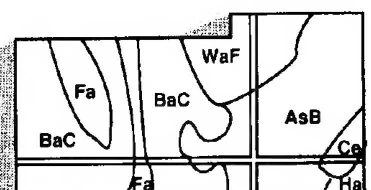

AREA OF INTEREST

NOTE: Map unit symbols in a soil survey may consist only of numbers or letters, or they may be a combination of numbers and letters.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1996. Soil names and descriptions were approved in 1997. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1996. This survey was made cooperatively by the Natural Resources Conservation Service, the Tennessee Agricultural Experiment Station, the Tennessee Department of Agriculture, and the McMinn County Board of Commissioners. The survey is part of the technical assistance furnished to the McMinn County Soil Conservation District.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

Cover: A Jersey dairy herd in an area of Waynesboro clay loam, 5 to 12 percent slopes, eroded. The corn and grass strips in the background are in areas of Dewey silty clay loam, 5 to 12 percent slopes, eroded, on the ridge and Etowah loam, 2 to 5 percent slopes, on the footslopes.

Additional information about the Nation's natural resources is available on the Natural Resources Conservation Service home page on the World Wide Web. The address is http://www.nrcs.usda.gov.

Contents

Issued 2004

Foreword

This soil survey contains information that affects land use planning in this survey area. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

James W. Ford
State Conservationist
Natural Resources Conservation Service

Soil Survey of McMinn County, Tennessee

By Richard L. Livingston and Melissa C. Oliver, Natural Resources Conservation Service

Fieldwork by Melissa C. Oliver and Richard L. Livingston, Natural Resources Conservation Service, and Billy R. Roach, McMinn County

United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with
Tennessee Agricultural Experiment Station, the Tennessee Department of Agriculture, and the McMinn County Board of Commissioners

McMinn County is in the southeastern part of Tennessee (fig. 1). It is about 139 miles from Nashville, 54 miles from Knoxville, and 50 miles from Chattanooga. It is bordered on the north by Loudon and Roane Counties, on the south by Bradley and Polk Counties, on the west by Meigs County, and on the east by Monroe County. The Hiwassee River forms part of the southern border. Athens, the county seat, is near the geographic center of the county. Etowah, Englewood, Niota, Calhoun, and Riceville are other towns in the county. According to census data, the county had a population of 45,001 in 1995.

The county is roughly triangular in shape and has an area of 276,700 acres, or about 432 square miles, of which 2,300 acres is water. The U.S. Department of Agriculture, Forest Service, owns about 2,200 acres in the county.

This soil survey updates the survey of McMinn County, Tennessee, published in 1957 (Bacon and others 1957). It provides additional information about the soils and has maps that have a photographic background.

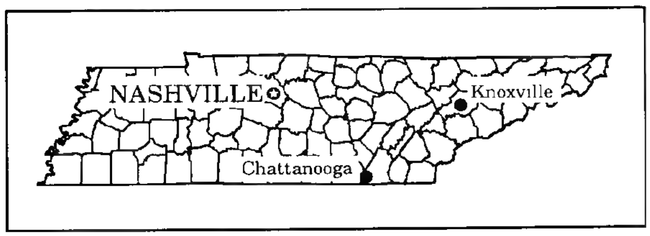

Figure 1.—Location of McMinn County in Tennessee.

General Nature of the County

This section gives general information about the county. It describes history and settlement; transportation and industry; natural resources; physiography, drainage, and geology; and climate.

History and Settlement

McMinn County was formed from a part of the Hiwassee District owned by the Cherokee Indians. The land was ceded to the United States by a treaty that was signed at Washington, D.C., on February 27, 1819. Under terms of the treaty, those individuals who chose to become citizens of the United States were given a reservation of 640 acres. Very few individuals accepted the offer. A grant of 640 acres also was made to a few other individuals who were deemed capable of managing their own affairs. These grants soon passed into the hands of land speculators (History of Tennessee 1887).

On November 13, 1819, the Legislature at Murfreesboro, Tennessee, passed an act to organize McMinn County. County court was organized on

March 6, 1820, in the home of John Walker at Calhoun. Justices present were George Colville, John Walker, Benjamin Griffith, Samuel Dickey, Hambright Black, Archibald Black, and Jacob Sharp (History of Tennessee 1887). Judge Charles Fleming Keith organized the first circuit court in the spring of 1820 at Calhoun (Byrum 1984). Court was temporarily held in a log structure erected in Calhoun before it was transferred to Athens in December 1923 (History of Tennessee 1887).

The county was named in honor of Joseph McMinn, who was born in Pennsylvania in 1758 and migrated to the east Tennessee area in about 1775. He was active in the 1796 Knoxville Convention, which drafted the first Tennessee State constitution. McMinn insisted on the inclusion of a "bill of rights" for the constitution. Later, he personally carried the State constitution to George Washington. McMinn was elected governor of Tennessee in 1815, 1817, and 1819 (Byrum 1984). At the time of his death, Gov. McMinn was in charge of the Cherokee Agency across the Hiwassee River. His body is buried in the yard adjoining the Presbyterian Church in Calhoun (History of Tennessee 1887).

Transportation played a big role in the location of towns and villages in the county. Many of the towns were established along the Hiwassee River or, in later years, along railroad lines.

Calhoun, which is on the banks of the Hiwassee River, was the first town established in the county. It was laid out by Major John Walker and named in honor of John C. Calhoun.

The need for a more central location for the county seat prompted the establishment of Athens. The town was laid out in 1821–22 on land donated by William Lowry. Courts were moved to Athens in December 1823, and the seat of justice was formally established by the State Legislature in 1824. The act for organizing a chancery court at Athens was passed on January 30, 1844. In 1887, the population of Athens was estimated at 1,500 and the town was said to be one of the most prosperous in east Tennessee.

Riceville had its beginning in 1855 on a block of land that C.N. Rice bought from Native Americans. The town was established soon after railroad construction reached the area.

Niota was formerly known as Mouse Creek. J.H. Gill, who opened the first store in the town, built the first house in 1855. Upon completion of the railroad, the citizens of the community erected a large railroad depot.

In 1870, Englewood began as an industrial community that was started by three brothers—James, Mortimer, and Jacob Brient. It was built along the banks of Chestuee Creek, about 2 miles south of the present town of Englewood. In 1907, the cotton mill was moved to a location near Tellico Junction, where a small community had sprung up near the railroad junction. The name of Tellico Junction was changed to Englewood in 1908.

Etowah was founded in 1907. L&N Railroad later bought 1,500 acres of farmland from Joseph Cobb, James L. Cooper, William Paris, and William T. Peck in order to locate a rail yard and service center in the town. Etowah was chartered in 1909.

In 1950, the population of Athens was 8,618 and the population of the county was 32,024. By 1990, the population of Athens had reached 12,573 and the county population had increased to 43,552.

Transportation and Industry

McMinn County has an excellent network of highways and roads, almost all with some type of bituminous surface. Interstate Highway 75 bisects the county northeast to southwest. U.S. Highway 11 runs roughly parallel to I–75, and U.S. Highway 411 crosses the eastern part of the county in a similar fashion. The major State highways are 68 and 30. State Highway 68 runs east-west across the northern tip of the county, and State Highway 30 begins in Etowah and runs roughly from the southeast to the northwest across the county. Numerous secondary State highways and county roads supplement the main arteries.

Two railroads and numerous motor freight companies serve businesses in the county. One port facility is available on the Hiwassee River near Calhoun. Commercial air service is available in Knoxville and Chattanooga. The McMinn County Airport is also available for smaller planes and private transportation.

Industrial enterprises include manufacturers of textile products, automotive parts, electrical appliances and parts, wood products, furniture, chemicals, plastic products, metal and aluminum fabricated products, dairy products, newsprint, and farm implements. Farming and the wood industry are also important enterprises in the county.

Natural Resources

Soils, water, minerals, and forestland are important natural resources of McMinn County. There is an abundant supply of fresh water. Year-round streams are common. The main streams that drain the county are Rogers, Spring, Oostanaula, Chestuee, and Conasauga Creeks. On the southern border, the Hiwassee River is part of the tailwaters of

Chickamauga Lake. Springs, small streams, ponds, and wells are numerous in the county, They furnish water for domestic use and for livestock. About half of the county has a State-approved public water supply.

Important mineral resources of the county are mainly limestone and barite. Limestone for construction materials and roads is produced from one active quarry in the county. Several small abandoned quarries are indicated by a special symbol on the detailed soil maps. Barite (barium sulfate) is mined in the northern part of the county. Most of the barite mines are now abandoned.

About 136,500 acres of McMinn County is forested. About 2,200 acres of this land is in Cherokee National Forest. Pulpwood and hardwood production are important industries in the county.

Physiography, Drainage, and Geology

B.A. Hartman, geologist, Natural Resources Conservation Service, helped prepare this section.

Topography in the county varies. The highest point in the county is on Starr Mountain, in the eastern part of the county. It is about 2,300 feet above mean sea level (m.s.l.). The lowest point is in the southwestern part of the county, near the Hiwassee River and Chickamauga Lake. It is about 690 feet above m.s.l. Elevation in the rest of the county ranges from 800 to 1,100 feet above m.s.l. In most areas, the difference in elevation between the valleys and the adjacent ridges is between 100 and 200 feet. Athens, the county seat, is about 880 feet above m.s.l.

McMinn County lies in two major land resource areas—the Southern Appalachian Ridges and Valleys and the Blue Ridge (USDA 1981). Differences in topography can be partly attributed to differential weathering (ease or resistance to weathering) of the underlying bedrock. Shale, limestone, and dolomite weather at a faster rate than sandstone, quartzite, and calcareous (limestone/dolomite) bedrock having a large content of chert or silica cementation. Intense folding and faulting of the rocks also influenced the weathering characteristics and played a large part in the development of the topography in the county.

The Southern Appalachian Ridges and Valleys region is characterized by a series of northeast-southwest oriented ridges and valleys that formed during the late Protozoic mountain building episode that formed the Appalachians. In the central part of the county, cherty dolomite and limestone of Ordovician age form the ridges. Copper Ridge Dolomite, Chepultepec Dolomite, and Longview Dolomite are the principal ridge formers. Bodine, Fullerton, and Dewey soils are common on these geologic formations. The less cherty Kingsport Formation and Mascot Dolomite are generally at the lower elevations (USGS 1952a, 1952b). Dewey and Fullerton soils predominate these areas. Most of the valleys in the central portion of the region are underlain by Cambrian-age Conasauga Shale (USGS 1952a, 1952b). This acid shale bedrock is parent material for the Coile, Townley, Apison, and Corryton series. Some areas of Conasauga Shale, Mascot Dolomite, and the Kingsport Formation are capped with material that was deposited by ancient streams, probably during the Pleistocene epoch. Waynesboro, Etowah, and Tasso soils and the upper part of the Dewey soils formed in these deposits. Younger alluvium on the flood plains was deposited during the Holocene epoch. Hamblen, Steadman, Pettyjon, Rockdell, and Bloomingdale soils are dominant on flood plains in this area.

The Ordovician-age Ottosee Shale and Athens Shale are exposed in a northeast-southwest oriented area that is southeast of Athens, in part of the Oostanaula Creek drainage area. These formations are also exposed near the base of the Red Hills area north of Etowah. Ottosee Shale and Athens Shale are the parent materials for the Nonaburg and Needmore soils. The Red Hills area is highly dissected and has dark red soils. The Ordovician-age Holston and Lenoir Limestones underlie two ridges in the central part of the county and a pronounced lobe north of Etowah. These formations have considerable amounts of sand in the bedrock, as well as an appreciable content of iron. Tellico, Steekee, and Red Hills soils are predominant in the uplands. Alcoa soils are on stream terraces and footslopes in the area. Neubert soils are on flood plains.

In the western part of the county, an area of highly dissected topography is underlain by the Cambrian-age Rome Formation (USGS and Tennessee Division of Geology 1953). This parent material is a heterogeneous mixture of yellow, brown, red, purple, and green siltstone, sandstone, and shale with a few thin layers of limestone or dolomite. Sunlight and Apison soils are common in the uplands. Very few stream terrace deposits are in this area. Hamblen soils are common on narrow flood plains.

The Blue Ridge land resource region is in the extreme eastern part of the county, on Starr Mountain. The Cambrian-age Nebo Sandstone, Nichols Shale, and Cochran Conglomerate underlie most of the area. The Precambrian-age Sandsuck Shale is exposed in a few areas at the base of the mountain (USGS and Tennessee Division of Geology 1953). McCamy and Unicoi soils are the predominant soils formed in areas of arkosic sandstone bedrock. Cataska and Harmiller

soils are the predominant soils formed in areas of shale bedrock. Lostcove and Keener soils are on the lower mountainsides and base slopes. They formed in bouldery and cobbly material that was moved down the mountain slope by gravity and water. Atkins and Arkaqua soils are on the flood plain along Bullet Creek.

Table 19 gives additional information about the relationships between soils, parent materials, and geology of the survey area.

Climate

Table 1 gives data on temperature and precipitation for the survey area as recorded at Athens, Tennessee, in the period 1962 to 1990. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter, the average temperature is 37.8 degrees F and the average daily minimum temperature is 26.4 degrees. The lowest temperature on record, which occurred on January 21, 1985, is -16 degrees. In summer, the average temperature is 75.1 degrees and the average daily maximum temperature is 87.2 degrees. The highest recorded temperature, which occurred on July 17, 1980, is 105 degrees.

Growing degree days are shown in table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total annual precipitation is about 57 inches. Of this, about 30 inches, or 53 percent, usually falls in April through September. The growing season for most crops falls within this period. The heaviest 1-day rainfall during the period of record was 5.46 inches on March 16, 1973. Thunderstorms occur on about 56 days each year, and most occur in summer.

The average seasonal snowfall is about 6.3 inches. The greatest snow depth at any one time during the period of record was 14 inches. On the average, 3 days of the year have at least 1 inch of snow on the ground. The number of such days varies greatly from year to year.

The average relative humidity in midafternoon is about 56 percent. Humidity is higher at night, and the average at dawn is about 85 percent. The sun shines 64 percent of the time possible in summer and 46 percent in winter. The prevailing wind is from the southwest. Average windspeed is highest, 8 miles per hour, in March.

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept or model of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey

area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

The descriptions, names, and delineations of the soils in this survey area do not fully agree with those of the soils in some adjacent survey areas. Differences are the result of a better knowledge of soils, modifications in series concepts, or variations in the intensity of mapping or in the extent of the soils in the survey areas.

Survey Procedures

The general procedures followed in making this survey are described in the "National Soil Survey Handbook" of the Natural Resources Conservation Service and the "Soil Survey Manual" (Soil Survey Staff 1996; Soil Survey Division Staff 1993). The soil survey of McMinn County published in 1957 (Bacon and others 1957), the "Geologic Map of East Tennessee with Explanatory Text" (USGS and Tennessee Division of Geology 1953), and other soil surveys of areas in the Ridges and Valleys and Blue Ridge provinces were among the references used.

Before fieldwork began, boundaries of slopes and landforms were plotted on United States Geological Survey (USGS) 7.5-minute topographic maps at a scale of 1:24,000. Maps from the 1957 soil survey were reduced from a scale of 1:15,840 to a scale of 1:24,000 to aid in transferring the boundaries. These boundaries and soil descriptions were used as a reference to plan soil observations and complete transects. Soil examinations were completed with the aid of a hand auger or spade or a hydraulic soil probe to a depth of 4 to 6 feet or to bedrock, whichever was shallower. After summarization of transects, the older soil series and map units were combined or reclassified, or both, according to the eighth edition of "Keys to Soil Taxonomy" (Soil Survey Staff 1998). Some soil series were dropped from the legend because of updates in soil classification. The 1938 United States Department of Agriculture Handbook, "Soils and Men," was the classification resource used for the 1957 survey. Five soil series were established to fill in gaps caused by the classification conversion and changes in interpretations of certain soil properties.

Samples for chemical and physical analyses were taken from representative sites of several soils in the survey area. The chemical and physical analyses were made by the Soil Survey Laboratory (SSL), Natural Resources Conservation Service, Lincoln, Nebraska, and the Department of Plant and Soils Science, University of Tennessee-Knoxville (USDA 1996). The SSL analyses are available in computerized data files, which can be accessed at the NRCS Soils Web site at http://soils.usda.gov. The

University of Tennessee analyses are included in a thesis by M.C. Oliver (Oliver 1997).

After completion of the soil mapping on 7.5-minute topographic maps, map unit delineations were transferred by hand to orthophotographs at a scale of 1:24,000. The density of the soil map units was generally decreased as a result of the change in map scale from 1:15,840 to 1:24,000. Surface drainage and cultural features were transferred from 7.5-minute topographic maps.

General Soil Map Units

The general soil map in this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, it consists of one or more major soils or miscellaneous areas and some minor soils or miscellaneous areas. It is named for the major soils or miscellaneous areas. The components of one map unit can occur in another but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

1. Fullerton-Bodine-Rockdell

Very deep, nearly level to very steep, well drained and somewhat excessively drained soils that have a clayey or loamy subsoil; formed in colluvium, residuum, or alluvium derived from cherty limestone and dolomite

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landform: Ridge crests, shoulder slopes, backslopes, and side slopes (figs. 2 and 3)
Slope range: 0 to 60 percent

Composition

Extent of map unit: 38 percent of the survey area
Composition of map unit:
Fullerton soils—43 percent
Bodine soils—22 percent
Rockdell soils—5 percent
Minor components—30 percent

Soil Properties and Qualities

Fullerton

Depth class: Very deep
Drainage class: Well drained
Position on landform: Ridge crests, shoulder slopes, backslopes, and side slopes
Parent material: Cherty limestone or dolomite residuum; some pedons have 1 to 2 feet of colluvium overlying the residuum
Surface texture: Gravelly silt loam
Slope: Gently sloping to very steep

Bodine

Depth class: Very deep
Drainage class: Somewhat excessively drained
Position on landform: Ridge crests, shoulder slopes, backslopes, and side slopes
Parent material: Cherty limestone and dolomite residuum; the upper 24 inches of the profile may have formed in colluvium or creep
Surface texture: Gravelly silt loam
Slope: Sloping to very steep

Rockdell

Depth class: Very deep
Drainage class: Well drained
Position on landform: Flood plains and drainageways near cherty uplands
Parent material: Mixed alluvium derived from cherty limestone and shale
Surface texture: Gravelly loam
Slope: Nearly level and gently sloping

Minor Components

- Dewey and Waynesboro soils on high stream terraces
- Minvale, Tasso, and Etowah soils on footslopes, the lower side slopes, and low stream terraces
- Hamblen, Bloomingdale, and Etowah soils on flood plains

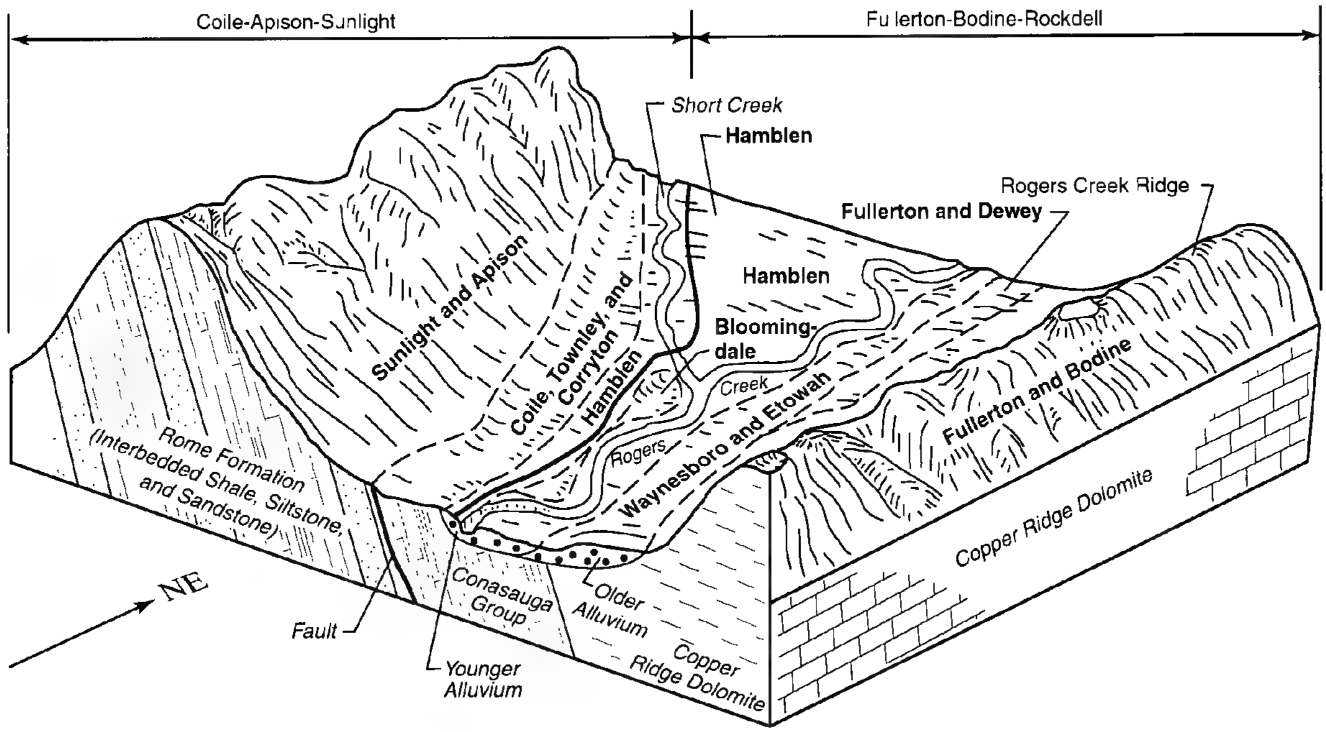

Figure 2.—Relationship of soils and parent material in the Fullerton-Bodine-Rockdell and Coile-Apison-Sunlight general soil map units.

Use and Management

Major uses: Cropland, pasture, hayland, woodland, and wildlife habitat

Management concerns:

• The hazard of erosion in sloping to very steep areas

• The low available water capacity in areas of the Bodine and Rockdell soils

• The equipment limitation in steep and very steep wooded areas

Management considerations:

• Implementing and maintaining erosion-control practices in gently sloping to steep areas of cropland

• Preventing overgrazing and maintaining the proper fertility level in areas used for pasture or hay

• Locating roads and trails as closely on the contour as possible, installing water breaks and culverts, and closing and seeding roads that are no longer used

• Controlling undesirable species and replanting after harvest in areas of woodland

• Providing food, cover, and nesting areas for wildlife

2. Coile-Apison-Sunlight

Shallow and moderately deep, sloping to very steep, well drained soils; formed in residuum from interbedded acid shale, siltstone, or sandstone

Setting

Physiographic area: Southern Appalachian Ridges and Valleys

Landform: Ridge crests and side slopes (fig. 2)

Slope range: 5 to 65 percent

Composition

Extent of map unit: 10 percent of the survey area

Composition of map unit:

Coile soils—27 percent

Apison and similar soils—20 percent

Sunlight soils—19 percent

Minor components—34 percent

Soil Properties and Qualities

Coile

Depth class: Shallow and moderately deep

Drainage class: Well drained

Position on landform: Ridge crests and side slopes
Parent material: Material weathered from tilted and fractured, fissile, acid shale
Surface texture: Silt loam
Slope: Sloping to very steep

Apison

Depth class: Moderately deep
Drainage class: Well drained
Position on landform: Ridge crests and side slopes
Parent material: Material weathered from acid shale and interbedded sandstone
Surface texture: Loam
Slope: Sloping to very steep

Sunlight

Depth class: Shallow
Drainage class: Well drained
Position on landform: Narrow, convex ridge crests, shoulder slopes, and side slopes
Parent material: Material weathered from tilted, interbedded siltstone, shale, and sandstone
Surface texture: Channery sandy loam
Slope: Sloping to very steep

Minor Components

• Intermingled areas of Corryton and Townley soils
• Hamblen and Wolftever soils on flood plains and along drainageways

Use and Management

Major uses: Pasture, hayland, and woodland
Management concerns:
• The shallow root zone, the depth to bedrock, the low available water capacity, the hazard of erosion, and the hazard of windthrow
Management considerations:
• Maintaining the proper fertility level and an adequate vegetative cover in areas used for pasture or hay

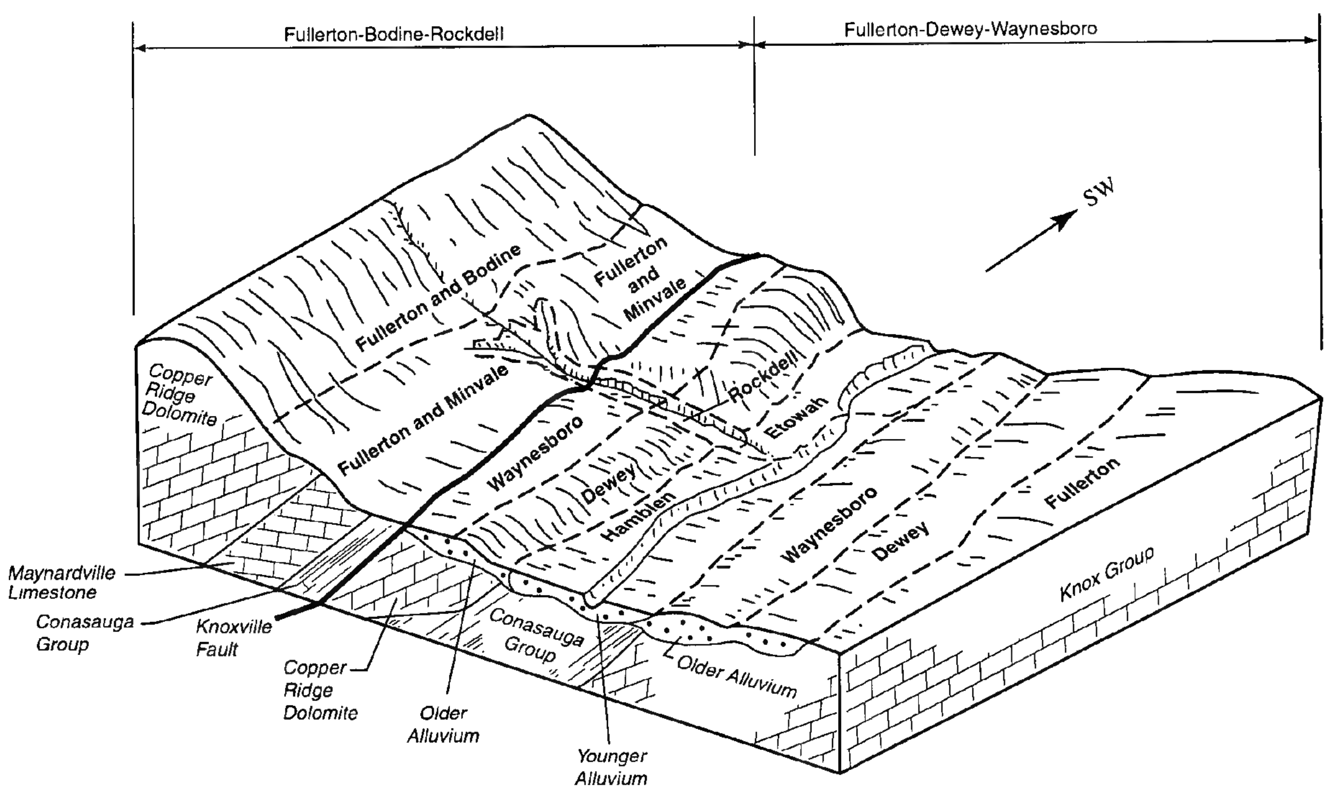

Figure 3.—Relationship of soils and parent material in the Fullerton-Bodine-Rockdell and Fullerton-Dewey-Waynesboro general soil map units.

• Locating roads and trails as closely to the contour as possible, installing water breaks and culverts, and applying a carefully regulated thinning program in areas of woodland

3. Coile-Corryton-Hamblen-Townley

Shallow, moderately deep, and very deep, nearly level to very steep, well drained and moderately well drained soils; formed in acid shale residuum and in alluvium

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landform: Broad ridge crests and side slopes
Slope range: 0 to 35 percent

Composition

Extent of map unit: 14 percent of the survey area
Composition of map unit:
Coile soils—39 percent
Corryton and similar soils—14 percent
Hamblen and similar soils—10 percent
Townley soils—9 percent
Minor components—28 percent

Soil Properties and Qualities

Coile

Depth class: Shallow and moderately deep
Drainage class: Well drained
Position on landform: Broad ridge crests and side slopes
Parent material: Acid shale residuum
Surface texture: Silt loam
Slope: Gently sloping to very steep

Corryton

Depth class: Very deep
Drainage class: Well drained
Position on landform: Broad ridge crests and side slopes
Parent material: Acid shale residuum
Surface texture: Silt loam
Slope: Gently sloping and sloping

Hamblen

Depth class: Very deep
Drainage class: Moderately well drained
Position on landform: Flood plains and drainageways
Parent material: Mixed alluvium derived from limestone, shale, and sandstone
Surface texture: Silt loam
Slope: Nearly level and gently sloping

Townley

Depth class: Moderately deep
Drainage class: Well drained
Position on landform: Broad ridge crests and side slopes in valleys
Parent material: Material weathered from tilted and fractured, acid shale
Surface texture: Silt loam
Slope: Gently sloping and sloping

Minor Components

• Intermingled areas of Udorthents and Waynesboro, Dewey, and Etowah soils
• Wolftever and Bellamy soils on low terraces and along drainageways
• Etowah and Bloomingdale soils on flood plains and along drainageways

Use and Management

Major uses: Cropland, pasture, and hayland
Management concerns:
• The hazard of erosion
• The depth to bedrock and the low available water capacity in areas of the Coile and Townley soils
Management considerations:
• Applying a system of conservation tillage, such as no-till planting
• Maintaining the proper fertility level and a vegetative cover

4. Fullerton-Dewey-Waynesboro

Very deep, gently sloping to very steep, well drained soils; formed in residuum, colluvium, and alluvium derived from cherty limestone and dolomite and in old, mixed alluvium

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landform: Broad ridge crests, side slopes, and terraces (fig. 3)
Slope range: 2 to 60 percent

Composition

Extent of map unit: 18 percent of the survey area
Composition of map unit:
Fullerton soils—42 percent
Dewey soils—16 percent
Waynesboro soils—13 percent
Minor components—29 percent

Soil Properties and Qualities

Fullerton

Depth class: Very deep
Drainage class: Well drained
Position on landform: Broad ridge crests and side slopes
Parent material: Cherty limestone and dolomite residuum; some pedons have 1 to 2 feet of colluvium overlying the residuum
Surface texture: Gravelly silt loam
Slope: Gently sloping to very steep

Dewey

Depth class: Very deep
Drainage class: Well drained
Position on landform: Broad ridge crests and side slopes
Parent material: Old alluvium underlain by material weathered from limestone or dolomite
Surface texture: Silt loam and silty clay loam
Slope: Gently sloping to moderately steep

Waynesboro

Depth class: Very deep
Drainage class: Well drained
Position on landform: Broad ridge crests and stream terraces
Parent material: Old alluvium derived from sandstone, shale, and limestone
Surface texture: Clay loam and silt loam
Slope: Gently sloping to moderately steep

Minor Components

- Etowah, Hamblen, and Rockdell soils on flood plains and along drainageways
- Tasso and Etowah soils on stream terraces and benches
- Intermingled areas of Corryton soils
- Scattered areas of Bradyville soils and Rock outcrop

Use and Management

Major uses: Cropland, pasture, and hayland
Management concerns:
- The hazard of erosion in sloping areas

Management considerations:
- Maintaining a proper fertility level and an adequate vegetative cover
- Using terraces, diversions, grassed waterways, field borders, and field strips

5. Tellico-Red Hills-Nonaburg

Shallow, moderately deep, and very deep, sloping to very steep, well drained soils; formed in residuum and colluvium derived from quartzose limestone and calcareous sandstone and shale

Setting

Physiographic area: Southern Appalachian Ridges and Valleys (in the Red Hills area)
Landform: Narrow ridge crests, backslopes, and side slopes (fig. 4)
Slope range: 5 to 80 percent

Composition

Extent of map unit: 17 percent of the survey area
Composition of map unit:
Tellico and similar soils—29 percent
Red Hills and similar soils—20 percent
Nonaburg and similar soils—17 percent
Minor components—34 percent

Soil Properties and Qualities

Tellico

Depth class: Very deep
Drainage class: Well drained
Position on landform: Narrow ridge crests, backslopes, and side slopes
Parent material: Material weathered from quartzose limestone and calcareous sandstone and shale
Surface texture: Loam
Slope: Sloping to very steep

Red Hills

Depth class: Moderately deep
Drainage class: Well drained
Position on landform: Side slopes and backslopes
Parent material: Residuum and colluvium derived from quartzose limestone and calcareous sandstone and shale
Surface texture: Sandy loam
Slope: Steep and very steep

Nonaburg

Depth class: Shallow
Drainage class: Well drained
Position on landform: Narrow ridge crests, shoulder slopes, and side slopes
Parent material: Material weathered from calcareous shale and thin interbedded layers of limestone

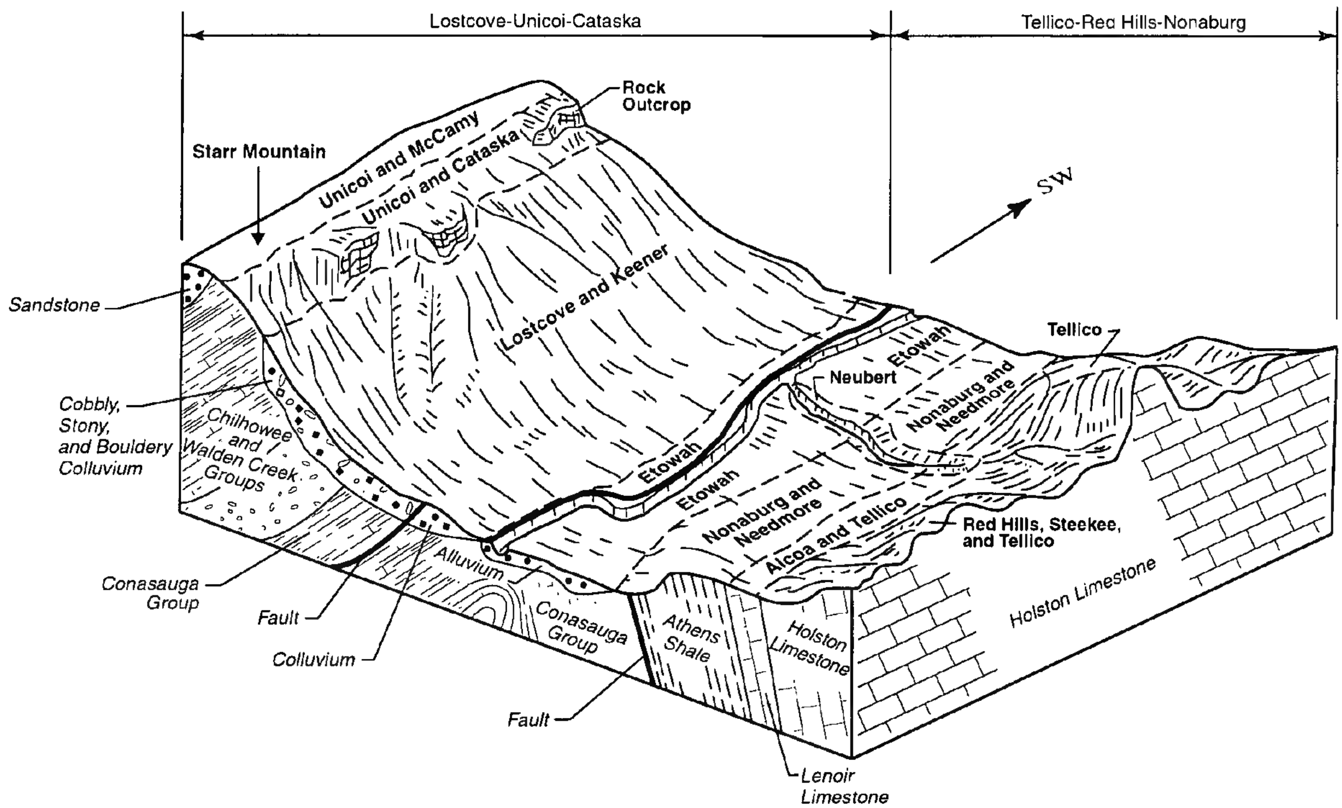

Figure 4.—Relationship of soils and parent material in the Tellico-Red Hills-Nonaburg and Lostcove-Unicoi-Cataska general soil map units.

Surface texture: Silty clay loam
Slope: Sloping to very steep

Minor Components

• Alcoa soils on footslopes, terraces, and the lower side slopes
• Neubert and Etowah soils on flood plains, along drainageways, and on low terraces
• Intermingled areas of Steekee, Coghill, Apison, and Needmore soils

Use and Management

Major uses: Woodland
Management concerns:
• The hazard of erosion, the steepness of slope, and the depth to bedrock in areas of the Red Hills and Nonaburg soils
Management considerations:
• Locating roads and trails as closely on the contour as possible, installing water breaks and culverts, and closing and seeding roads that are no longer used

6. Lostcove-Unicoi-Cataska

Shallow and very deep, gently sloping to very steep, well drained and excessively drained soils; formed in colluvium on footslopes and in residuum from arkosic sandstone and metashale on ridge crests and side slopes

Setting

Physiographic area: Blue Ridge
Landform: Footslopes, ridge crests, shoulder slopes, and side slopes (fig. 4)
Slope range: 2 to 120 percent

Composition

Extent of map unit: 3 percent of the survey area
Composition of map unit:
Lostcove soils—38 percent
Unicoi soils—19 percent
Cataska soils—11 percent
Minor components—32 percent

Soil Properties and Qualities

Lostcove

Depth class: Very deep
Drainage class: Well drained
Position on landform: Lower side slopes and footslopes
Parent material: Colluvium derived from arkosic sandstone
Surface texture: Gravelly loam
Slope: Gently sloping to very steep

Unicoi

Depth class: Shallow
Drainage class: Excessively drained
Position on landform: Ridge crests and the upper side slopes
Parent material: Arkosic sandstone residuum
Surface texture: Gravelly sandy loam
Slope: Sloping to very steep

Cataska

Depth class: Shallow
Drainage class: Excessively drained
Position on landform: Upper side slopes
Parent material: Material weathered from tilted metashale and fractured arkosic sandstone
Surface texture: Very channery loam
Slope: Steep and very steep

Minor Components

- Harmiller and McCamy soils on ridge crests
- Intermingled areas of Keener soils on the lower side slopes and footslopes
- Isolated areas of Rock outcrop on ridge crests and the upper side slopes
- Etowah soils on the higher terraces
- Atkins and Arkaqua soils on flood plains

Use and Management

Major uses: Woodland
Management concerns:
- The equipment limitation and the seedling mortality rate
- The depth to bedrock and the hazard of windthrow in areas of the Unicoi and Cataska soils

Management considerations:
- Applying a carefully regulated thinning program and cabling and winching logs
- Carefully choosing planting sites for seedlings and reinforcement plantings
- Locating roads and trails as closely on the contour as possible, installing water breaks and culverts, and closing and seeding roads that are no longer used

Detailed Soil Map Units

The map units delineated on the detailed soil maps in this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The contrasting components are mentioned in the map unit descriptions. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series.* Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases.* Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Dewey silt loam, 2 to 5 percent slopes, is a phase of the Dewey series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Corryton-Townley complex, 2 to 5 percent slopes, eroded, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use

and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Red Hills and Steekee soils, 35 to 80 percent slopes, rocky, is an undifferentiated group in this survey area.

This survey includes *miscellaneous areas.* Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

AaB2—Alcoa loam, 2 to 5 percent slopes, eroded

Setting

Physiographic area: Southern Appalachian Ridges and Valleys (in the Red Hills area)
Landscape position: Footslopes and terraces
Size of areas: 5 to 35 acres
Major land use: Pasture, hay, or cropland

Composition

Alcoa soil and similar components: 90 to 95 percent
Contrasting components: 5 to 10 percent

Minor Components

Similar components:
- Intermingled areas of Tellico soils
- Dewey and Waynesboro soils
- Soils that have less clay in the subsoil than the Alcoa soil

Contrasting components:
- Isolated areas of soils that have bedrock at a depth of 40 to 60 inches
- Small areas of Neubert soils on narrow flood plains and along drainageways

Typical Profile

Surface layer:
0 to 3 inches—dark reddish brown, very friable loam
Subsoil:
3 to 14 inches—dark red, friable sandy clay loam
14 to 33 inches—dark reddish brown, friable clay
33 to 62 inches—dark reddish brown, friable clay with brownish yellow mottles

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Well suited
Management considerations:
- Few limitations affect cropland.
- Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
- Terraces, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and hay

Suitability: Well suited
Management considerations:
- Few limitations affect the management of pasture and hayland.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Well suited
Management considerations:
- Few limitations affect forest management.
- Plant competition from undesirable species may be a problem when establishing a new forest crop.
- Proper site preparation helps to control the plant competition that may occur immediately after planting.
- Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
- The potential for openland and woodland wildlife habitat is good.
- Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
- Field borders and filter strips provide good wildlife habitat.

• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Well suited
Management considerations:
• The main limitations affecting urban uses are the moderate permeability, the clayey subsoil, low strength, and the shrink-swell potential.
• The moderate permeability and clayey texture in the subsoil are limitations affecting some sanitary facilities and building site development.
• Low strength may be a problem on sites for local roads and streets or when the soil is used as a source of roadfill.
• The shrink-swell potential in the subsoil may be a problem when footers and basements are constructed.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 2e

AaC2—Alcoa loam, 5 to 12 percent slopes, eroded

Setting

Physiographic area: Southern Appalachian Ridges and Valleys (in the Red Hills area)
Landscape position: Footslopes and terraces
Size of areas: 5 to 200 acres
Major land use: Pasture, hay, or cropland

Composition

Alcoa soil and similar components: 90 to 95 percent
Contrasting components: 5 to 10 percent

Minor Components

Similar components:
• Intermingled areas of Dewey and Waynesboro soils
• Soils that have less clay in the subsoil than the Alcoa soil

Contrasting components:
• Isolated areas of soils that have bedrock at a depth of 40 to 60 inches
• Small areas of Neubert soils on narrow flood plains and along drainageways

Typical Profile

Surface layer:
0 to 3 inches—dark reddish brown, very friable loam
Subsoil:
3 to 14 inches—dark red, friable sandy clay loam
14 to 33 inches—dark reddish brown, friable clay
33 to 62 inches—dark reddish brown, friable clay with brownish yellow mottles

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Suited
Management considerations:
• Few limitations affect cropland.
• Erosion is a moderate hazard if a conventional tillage system is used.
• A crop rotation that includes grasses and legumes helps to control erosion.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• Terraces, diversions, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and hay

Suitability: Well suited
Management considerations:
• Few limitations affect the management of pasture and hayland.
• The steepness of slope may be a limitation affecting hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.

• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
• The potential for openland and woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Suited
Management considerations:
• The main limitations affecting urban uses are the moderate permeability, the clayey subsoil, low strength, the shrink-swell potential, and the steepness of slope.
• The moderate permeability and clayey texture in the subsoil are limitations affecting some sanitary facilities and building site development.
• Low strength may be a problem on sites for local roads and streets or when the soil is used as a source of roadfill.
• The shrink-swell potential in the subsoil may be a problem when footers and basements are constructed.
• The steepness of slope is a limitation affecting some urban uses.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 3e

AaD2—Alcoa loam, 12 to 25 percent slopes, eroded

Setting

Physiographic area: Southern Appalachian Ridges and Valleys (in the Red Hills area)
Landscape position: Footslopes and the lower side slopes
Size of areas: 5 to 40 acres
Major land use: Pasture, hay, or woodland

Composition

Alcoa soil and similar components: 90 to 95 percent
Contrasting components: 5 to 10 percent

Minor Components

Similar components:
• Isolated areas of Coghill soils
• Waynesboro soils
• Soils that have yellow colors and less sand in the subsoil that the Alcoa soil
Contrasting components:
• Intermingled areas of Apison soils
• Small areas of Neubert soils on narrow flood plains and along drainageways
• Collegedale soils

Typical Profile

Surface layer:
0 to 3 inches—dark reddish brown, very friable loam
Subsoil:
3 to 14 inches—dark red, friable sandy clay loam
14 to 33 inches—dark reddish brown, friable clay
33 to 62 inches—dark reddish brown, friable clay with brownish yellow mottles

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High

Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Poorly suited
Management considerations:
• The main management concern is the hazard of erosion.
• Erosion is a severe hazard if a conventional tillage system is used.
• A long-term crop rotation that includes grasses and legumes helps to control erosion.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• Diversions, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and hay

Suitability: Suited
Management considerations:
• The main limitation is the steepness of slope.
• The steepness of slope increases the difficulty of properly managing pastures and limits the use of this soil as hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, and plant competition.
• The hazard of erosion can be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water breaks and culverts.
• Temporary roads that are no longer used can be closed and protected by seeding and by installing water breaks.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation only when large, specialized equipment is used.
• Slopes generally are broken up enough or are short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Suited
Management considerations:
• The potential for openland wildlife habitat is fair, and the potential for woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Poorly suited
Management considerations:
• The main limitations affecting urban uses are the moderate permeability, the clayey subsoil, low strength, the shrink-swell potential, and the steepness of slope.

• The moderate permeability and clayey texture in the subsoil are limitations affecting some sanitary facilities and building site development.
• Low strength may be a problem on sites for local roads and streets or when the soil is used as a source of roadfill.
• The shrink-swell potential in the subsoil may be a problem when footers and basements are constructed.
• The steepness of slope is a limitation affecting some urban uses.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 4e

AcF—Apison-Coile complex, 25 to 60 percent slopes

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Narrow ridge crests and dissected side slopes
Size of areas: 5 to 100 acres
Major land use: Woodland

Composition

Apison soil and similar components: 50 to 80 percent
Coile soil and similar components: 20 to 50 percent
Contrasting components: 5 to 15 percent

Minor Components

Similar components:
• Soils that have less clay in the subsoil than the Apison and Coile soils
• Intermingled areas of soils that have dark red colors
Contrasting components:
• Intermingled areas of Coghill, Corryton, and Townley soils
• Isolated areas of Rock outcrop near slope breaks
• Soils that have hard bedrock at a depth of 20 to 40 inches

Typical Profile

Apison

Surface layer:
0 to 3 inches—brown, friable loam
Subsoil:
3 to 19 inches—yellowish red, friable clay loam with brown mottles
19 to 22 inches—strong brown, friable channery clay loam with brownish yellow mottles
Substratum:
22 to 60 inches—brown, friable sandy loam; layers of olive yellow, soft, sandy shale bedrock in the lower part

Coile

Surface layer:
0 to 3 inches—dark brown, very friable silt loam
Subsoil:
3 to 10 inches—dark yellowish brown and strong brown, friable very channery silt loam and channery clay
Substratum:
10 to 18 inches—strong brown, friable channery clay with light brownish yellow mottles
Soft bedrock:
18 to 24 inches—light olive brown and light yellowish brown, tilted, acid shale

Soil Properties and Qualities

Apison

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to soft bedrock: 20 to 40 inches
Shrink-swell potential: Low

Coile

Drainage class: Well drained
Permeability: Moderately slow or moderate
Available water capacity: Very low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid to moderately acid
Depth to soft bedrock: 9 to 20 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• The main management concerns in areas used for cultivated crops are the hazard of erosion and the depth to bedrock.

Pasture and hay

Suitability: Unsuited

Management considerations:
• The main limitations are the steepness of slope, the moderate available water capacity of the Apison soil, and the very low available water capacity of the Coile soil.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, plant competition, seedling mortality, and the hazard of windthrow.
• The hazard of erosion may be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water breaks and culverts.
• Temporary roads that are no longer used can be closed and protected by seeding and by installing water breaks.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation only when large, specialized equipment is used.
• Slopes generally are broken up enough or are short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• When establishing a new forest crop, seedling mortality may be a problem because of the very low available water capacity in the Coile soil.
• Aspect and the depth to bedrock should be carefully considered when planting sites are selected for seedlings.
• Reinforcement plantings can be made until the desired stand is attained.
• Windthrow is a hazard in some areas because of the shallow root zone in the Coile soil.
• Stands in areas of the Coile soil should be thinned less intensively and more frequently than those in areas where windthrow is less likely.
• See table 7 for specific information concerning potential productivity and suggested trees to plant on this map unit.

Wildlife habitat

Suitability: Suited
Management considerations:
• The potential for woodland wildlife habitat is good in areas of the Apison soil and fair in areas of the Coile soil.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Poorly suited
Management considerations:
• The depth to bedrock is a limitation affecting most building site development.
• The steepness of slope is a limitation affecting most urban uses.
• Proper design, installation, and site preparation help to overcome some of the limitations.
• A suitable alternative site should be selected.

Interpretive Group

Land capability classification: 7e

AsC—Apison-Sunlight complex, 5 to 12 percent slopes

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Dissected ridge crests and side slopes
Size of areas: 5 to 80 acres
Major land use: Woodland, hay, or pasture

Composition

Apison soil and similar components: 50 to 90 percent
Sunlight soil and similar components: 10 to 45 percent
Contrasting components: 5 to 15 percent

Minor Components

Similar components:
• Coile and Townley soils
Contrasting components:
• Isolated areas of Rock outcrop

• Scattered areas of soils that are more than 40 inches deep over bedrock

Typical Profile

Apison

Surface layer:
0 to 3 inches—brown, friable loam
Subsoil:
3 to 19 inches—yellowish red, friable clay loam with brown mottles
19 to 22 inches—strong brown, friable channery clay loam with brownish yellow mottles
Substratum:
22 to 60 inches—brown, friable sandy loam; layers of olive yellow, soft, sandy shale bedrock in the lower part

Sunlight

Surface layer:
0 to 3 inches—dark reddish brown, very friable channery sandy loam
Subsoil:
3 to 13 inches—reddish brown, friable very channery loam
Soft bedrock:
13 to 20 inches—fractured and tilted, reddish siltstone, sandstone, and shale

Soil Properties and Qualities

Apison

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to soft bedrock: 20 to 40 inches
Shrink-swell potential: Low

Sunlight

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to soft bedrock: 10 to 20 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Poorly suited
Management considerations:
• The main management concerns in areas used for cultivated crops are the hazard of erosion on both soils, the depth to bedrock and the very low available water capacity of the Sunlight soil, and the moderate available water capacity of the Apison soil.

Pasture and hay

Suitability: Suited
Management considerations:
• The main limitations are the moderate available water capacity of the Apison soil and the very low available water capacity of the Sunlight soil.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are plant competition in areas of the Apison soil and seedling mortality and the hazard of windthrow in areas of the Sunlight soil.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• When establishing a new forest crop, the seedling mortality rate may be high because of the shallow rooting depth and the very low available water capacity of the Sunlight soil.
• Aspect and the depth to bedrock should be carefully considered when planting sites are selected for seedlings.
• Reinforcement plantings can be made until the desired stand is attained.
• Windthrow is a hazard in some areas because of the shallow root zone in the Sunlight soil.
• The windthrow hazard can be reduced by applying a carefully regulated thinning and salvage program.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Suited
Management considerations:
- The potential for openland and woodland wildlife habitat is good in areas of the Apison soil.
- The potential for woodland wildlife habitat is fair in areas of the Sunlight soil.
- Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
- Field borders and filter strips provide good wildlife habitat.
- Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
- Buffer zones along streams provide benefits to wildlife as well as erosion control.
- Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
- Food plots or areas of green browse can be established along logging roads and trails.
- The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
- Den trees should not be harvested.
- Brush piles or other nesting sites are needed.

Urban uses

Suitability: Poorly suited
Management considerations:
- The main limitations affecting urban uses are the depth to bedrock and the steepness of slope.
- The depth to bedrock and the steepness of slope are limitations affecting most building site development and sanitary facilities.
- A suitable alternative site should be selected.

Interpretive Group

Land capability classification: Apison—3e; Sunlight—6e

AsF—Apison-Sunlight complex, 25 to 60 percent slopes, very rocky

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Dissected ridge crests and side slopes
Size of areas: 5 to several hundred acres
Major land use: Woodland

Composition

Apison soil and similar components: 40 to 50 percent
Sunlight soil and similar components: 35 to 45 percent
Rock outcrop: 2 to 10 percent
Contrasting components: 10 to 15 percent

Minor Components

Similar components:
- Soils that have less clay in the subsoil than the Apison and Sunlight soils
- Intermingled areas of Coile and Townley soils

Contrasting components:
- Scattered areas of soils that are more than 40 inches deep over bedrock

Typical Profile

Apison

Surface layer:
0 to 3 inches—brown, friable loam
Subsoil:
3 to 19 inches—yellowish red, friable clay loam with brown mottles
19 to 22 inches—strong brown, friable channery clay loam with brownish yellow mottles
Substratum:
22 to 60 inches—brown, friable sandy loam; layers of olive yellow, soft, sandy shale bedrock in the lower part

Sunlight

Surface layer:
0 to 3 inches—dark reddish brown, very friable channery sandy loam
Subsoil:
3 to 13 inches—reddish brown, friable very channery loam
Soft bedrock:
13 to 20 inches—fractured and tilted, reddish siltstone, sandstone, and shale

Soil Properties and Qualities

Apison

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to soft bedrock: 20 to 40 inches
Shrink-swell potential: Low

Sunlight

Drainage class: Well drained
Permeability: Moderate

Available water capacity: Very low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to soft bedrock: 10 to 20 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• The main limitations affecting cultivated crops are erosion and the depth to bedrock in areas of the Sunlight soil.

Pasture and hay

Suitability: Unsuited
Management considerations:
• The main limitations are the steepness of slope, the moderate available water capacity of the Apison soil, and the very low available water capacity of the Sunlight soil.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, seedling mortality, and the hazard of windthrow on both soils and plant competition in areas of the Apison soil.
• The hazard of erosion can be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water breaks and culverts.
• Temporary roads that are no longer used can be closed and protected by seeding and by installing water breaks.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation only when large, specialized equipment is used.
• Slopes generally are broken up enough or are short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• Plant competition from undesirable species may be a problem when establishing a new forest crop in areas of the Apison soil.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• When establishing a new forest crop, the seedling mortality rate may be high because of the shallow rooting depth and the very low available water capacity of the Sunlight soil.
• Aspect and the depth to bedrock should be carefully considered when planting sites are selected for seedlings.
• Reinforcement plantings can be made until the desired stand is attained.
• Windthrow is a hazard in some areas because of the shallow root zone in the Sunlight soil.
• The windthrow hazard can be reduced by applying a carefully regulated thinning and salvage program.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Suited
Management considerations:
• The potential for woodland wildlife habitat is good in areas of the Apison soil and fair in areas of the Sunlight soil.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Poorly suited
Management considerations:
• The main limitations affecting urban uses are the depth to bedrock and the steepness of slope.
• A suitable alternative site should be selected.

Interpretive Group

Land capability classification: 7e

At—Atkins-Arkaqua complex, frequently flooded

Setting

Physiographic area: Blue Ridge (in the southern part)
Landscape position: Flood plain along Bullet Creek

Size of areas: 160 acres
Slope range: 0 to 3 percent
Major land use: Woodland

Composition

Atkins soil and similar components: 70 to 90 percent
Arkaqua soil and similar components: 10 to 30 percent
Contrasting components: 5 to 10 percent

Minor Components

Similar components:
• Soils that are moderately well drained
• Small areas of soils that are ponded for brief periods
Contrasting components:
• Small areas of Keener soils
• Soils on footslopes
• Intermingled areas of Harmiller and Junaluska soils at the slightly higher elevations

Typical Profile

Atkins

Surface layer:
0 to 2 inches—moderately decomposed hardwood litter and roots
2 to 6 inches—brown, very friable silt loam
Subsoil:
6 to 30 inches—grayish brown, friable loam with yellowish brown mottles
30 to 42 inches—grayish brown, friable sandy loam with yellowish brown mottles
Substratum:
42 to 60 inches—light brownish gray, very friable sandy loam with strong brown and yellowish brown mottles

Arkaqua

Surface layer:
0 to 2 inches—moderately decomposed leaves, twigs, and roots
2 to 7 inches—dark grayish brown silt loam
Subsoil:
7 to 14 inches—light yellowish brown, friable loam with brownish gray mottles
14 to 22 inches—light brownish gray, friable loam with olive yellow mottles
22 to 33 inches—light gray, very friable sandy loam with brown mottles
Substratum:
33 to 45 inches—light gray, friable very gravelly sandy loam with brown mottles
45 to 60 inches—gray, friable very gravelly loam with brown mottles

Soil Properties and Qualities

Atkins

Drainage class: Poorly drained
Permeability: Slow to moderately rapid
Available water capacity: Moderate
Seasonal high water table: At the surface or within a depth of 12 inches
Flooding: Frequent
Soil reaction: Extremely acid to strongly acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Arkaqua

Drainage class: Somewhat poorly drained
Permeability: Moderate
Available water capacity: Moderate
Seasonal high water table: Between depths of 12 and 24 inches
Flooding: Frequent
Soil reaction: Extremely acid to strongly acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Poorly suited
Management considerations:
• The main management concerns in areas used for cultivated crops are the seasonal high water table and the flooding.
• Better drained soils should be used for cultivated crops.

Pasture and hay

Suitability: Poorly suited
Management considerations:
• The main limitations are the seasonal high water table and the flooding.
• Deferment of grazing when the soils are wet minimizes compaction and damage to the stand and helps to prevent excessive runoff.
• The species that are tolerant of the wetness and the flooding grow best.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Suited

Management considerations:
• The main management concerns are the equipment limitation, plant competition, and seedling mortality.
• Operating equipment when the soils are wet results in excessive rutting or miring.
• Equipment should be operated only when the soils are dry and after gravel or other suitable subgrade material has been added to the main roads.
• If possible, roads should be constructed in areas of nearby, better suited soils.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• When establishing a new forest crop, the seedling mortality rate may be high because of the seasonal high water table.
• Reinforcement plantings can be made until the desired stand is attained.
• Preparing the seedbed so that seedlings can be planted on ridges helps to overcome the wetness.
• The species that can tolerate the wetness should be selected for planting.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Suited
Management considerations:
• The potential for wetland and openland wildlife habitat is fair.
• The potential for woodland wildlife habitat is fair in areas of the Atkins soil and good in areas of the Arkaqua soil.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Poorly suited
Management considerations:
• The main limitations affecting urban uses are the flooding and the wetness.
• The flooding and the wetness are difficult to overcome.
• A suitable alternative site should be selected.

Interpretive Group

Land capability classification: Atkins—4w; Arkaqua—3w

BeB—Bellamy silt loam, 1 to 5 percent slopes

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Low stream terraces and drainageways
Size of areas: 5 to 40 acres
Major land use: Pasture, hayland, cropland, or woodland

Composition

Bellamy soil and similar components: 80 to 95 percent
Contrasting components: 5 to 20 percent

Minor Components

Similar components:
• Shady soils at the slightly higher elevations
• Wolftever soils in landscape positions similar to those of the Bellamy soil
• Intermingled areas of somewhat poorly drained soils
• Scattered areas of Tasso soils
Contrasting components:
• Small areas of Bloomingdale soils in depressions
• Hamblen and Steadman soils, which are subject to flooding

Typical Profile

Surface layer:
0 to 9 inches—brown, very friable silt loam
Subsoil:
9 to 17 inches—yellowish brown, very friable silt loam with yellow mottles
17 to 25 inches—pale brown, friable clay loam with light brownish gray mottles
25 to 38 inches—yellowish brown, firm clay loam with light brownish gray mottles
38 to 58 inches—grayish brown, firm clay loam with brown and brownish yellow mottles
58 to 67 inches—mottled light brownish gray, brown, and brownish yellow, firm silty clay loam

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderately slow
Available water capacity: Moderate

Depth to fragic properties: Between 14 and 24 inches
Seasonal high water table: Between depths of 15 and 24 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Suited
Management considerations:
• The main management concerns in areas used for cultivated crops are the moderately deep root zone, the moderate available water capacity, and the wetness.
• The wetness delays planting and harvesting in some years.
• Crop species that have a short growing season and can tolerate the wetness should be selected for planting.
• Conservation tillage, crop residue management, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• Terraces, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and hay

Suitability: Well suited
Management considerations:
• Few limitations affect the management of pasture and hayland.
• The growth of some forage species is limited by the moderately deep root zone and the moderate available water capacity.
• The forage species that can tolerate the wetness and the flooding grow best.
• Deferment of grazing when the soil is wet minimizes compaction and damage to the stand and helps to prevent excessive runoff.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
• The potential for openland and woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Suited
Management considerations:
• The main limitations affecting urban uses are the wetness and the moderately slow permeability in the subsoil.
• Special measures are needed to help overcome subsurface drainage problems.
• This soil is best suited to dwellings without basements.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 2e

Bm—Bloomingdale silty clay loam, occasionally flooded

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Flood plains and depressions
Size of areas: 4 to 115 acres

Slope range: 0 to 2 percent
Major land use: Pasture, hay, or woodland

Composition

Bloomingdale soil and similar components: 80 to 90 percent
Contrasting components: 10 to 20 percent

Minor Components

Similar components:
• Scattered areas of soils that have less clay in the subsoil than the Bloomingdale soil
• Somewhat poorly drained soils
Contrasting components:
• Intermingled areas of Steadman, Hamblen, and Bellamy soils at the slightly higher elevations

Typical Profile

Surface layer:
0 to 5 inches—gray, friable silty clay loam
Subsoil:
5 to 14 inches—gray, friable clay with yellowish brown mottles
Substratum:
14 to 60 inches—gray, friable clay with yellowish brown mottles

Soil Properties and Qualities

Drainage class: Poorly drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At the surface or within a depth of 12 inches
Flooding: Occasional
Soil reaction: Moderately acid to moderately alkaline
Depth to bedrock: More than 60 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Poorly suited
Management considerations:
• The main management concerns in areas used for cultivated crops are the seasonal high water table and the flooding.
• The wetness delays planting and harvesting in most years.
• Crop species that have a short growing season and can tolerate the wetness should be selected for planting.

Pasture and hay

Suitability: Poorly suited
Management considerations:
• The main limitations are the seasonal high water table and the flooding.
• The forage species that can tolerate the wetness and the flooding grow best.

Woodland

Suitability: Poorly suited
Management considerations:
• The main management concerns are the equipment limitation, plant competition, and seedling mortality.
• Operating equipment when the soil is wet results in excessive rutting or miring.
• Equipment should be operated only when the soil is dry and after gravel or other suitable subgrade material has been added to the main roads.
• If possible, roads should be constructed in areas of nearby, better suited soils.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• When establishing a new forest crop, the seedling mortality rate may be high because of the seasonal high water table.
• Reinforcement plantings can be made until the desired stand is attained.
• Preparing the seedbed so that seedlings can be planted on ridges helps to overcome the wetness.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
• The potential for wetland wildlife habitat is good, and the potential for openland and woodland wildlife habitat is fair.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Buffer zones along streams provide food and cover as well as erosion control.
• Establishing shallow water areas provides a water source for upland wildlife and promotes use of the area by waterfowl, shore birds, and other wetland wildlife.

Urban uses

Suitability: Poorly suited
Management considerations:
• The main limitations affecting urban uses are the flooding and the wetness.

• The flooding and the wetness are difficult to overcome.
• A suitable alternative site should be selected.

Interpretive Group

Land capability classification: 4w

BoC2—Bodine gravelly silt loam, 5 to 12 percent slopes, eroded

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Ridge crests and shoulder slopes
Size of areas: 5 to 440 acres
Major land use: Pasture, hay, or woodland

Composition

Bodine soil and similar components: 85 to 95 percent
Contrasting components: 5 to 15 percent

Minor Components

Similar components:
• Intermingled areas of Fullerton soils
• Minvale soils on footslopes and in coves
• Soils that have more clay in the subsoil than the Bodine soil
Contrasting components:
• Isolated areas of Rock outcrop
• Rockdell soils in narrow drainageways
• Small areas of soils that have limestone bedrock at a depth of 20 to 40 inches

Typical Profile

Surface layer:
0 to 1 inch—partially decomposed pine needles and twigs
1 to 6 inches—brown, very friable gravelly silt loam
Subsurface layer:
6 to 15 inches—yellowish brown, very friable gravelly silt loam
Subsoil:
15 to 25 inches—yellowish brown, friable very gravelly silty clay loam
25 to 36 inches—strong brown, friable very gravelly clay loam with brownish yellow mottles
36 to 50 inches—strong brown, friable gravelly clay
50 to 62 inches—mottled red, strong brown, and brownish yellow, firm gravelly clay

Soil Properties and Qualities

Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Available water capacity: Low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Extremely acid to strongly acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Suited
Management considerations:
• The main management concerns in areas used for cultivated crops are the hazard of erosion and the low available water capacity.
• The gravelly surface layer may restrict tillage.
• Erosion is a moderate hazard if a conventional tillage system is used.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• A crop rotation that includes grasses and legumes helps to control erosion.
• Terraces, diversions, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and hay

Suitability: Suited
Management considerations:
• The main limitation is the low available water capacity.
• The steepness of slope may be a limitation affecting hayland.
• The plant species that can withstand droughtiness grow best.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.

• The seedling mortality rate may be high because of the gravelly surface layer and the low available water capacity.
• Reinforcement plantings can be made until a desirable stand is attained.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Suited
Management considerations:
• The potential for openland and woodland wildlife habitat is fair.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Suited
Management considerations:
• The main limitations affecting urban uses are the pebbles and cobbles throughout the soil and the steepness of slope.
• The gravel in the surface layer and the pebbles, cobbles, and stones throughout the soil may cause problems in areas used for lawns or when the soil is landscaped or excavated.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 4s

BoD2—Bodine gravelly silt loam, 12 to 25 percent slopes, eroded

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Side slopes, shoulder slopes, and ridge crests
Size of areas: 5 to 295 acres
Major land use: Pasture, hay, or woodland

Composition

Bodine soil and similar components: 85 to 95 percent
Contrasting components: 5 to 15 percent

Minor Components

Similar components:
• Intermingled areas of Fullerton soils
• Minvale soils on footslopes and in coves
• Soils that have more clay in the subsoil than the Bodine soil
Contrasting components:
• Isolated areas of Rock outcrop
• Rockdell soils in narrow drainageways
• Small areas of soils that have limestone bedrock at a depth of 20 to 40 inches

Typical Profile

Surface layer:
0 to 1 inch—partially decomposed pine needles and twigs
1 to 6 inches—brown, very friable gravelly silt loam
Subsurface layer:
6 to 15 inches—yellowish brown, very friable gravelly silt loam
Subsoil:
15 to 25 inches—yellowish brown, friable very gravelly silty clay loam
25 to 36 inches—strong brown, friable very gravelly clay loam with brownish yellow mottles
36 to 50 inches—strong brown, friable gravelly clay
50 to 62 inches—mottled red, strong brown, and brownish yellow, firm gravelly clay

Soil Properties and Qualities

Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Available water capacity: Low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Extremely acid to strongly acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• The main management concerns in areas used for

cultivated crops are the hazard of erosion, the steepness of slope, and the low available water capacity.

Pasture and hay

Suitability: Suited
Management considerations:
• The main limitations are the low available water capacity and the steepness of slope.
• The steepness of slope increases the difficulty of properly managing pastures and limits the use of this soil as hayland.
• The plant species that can withstand droughtiness grow best.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, plant competition, and seedling mortality.
• The hazard of erosion can be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water breaks and culverts.
• Temporary roads that are no longer used can be closed and protected by seeding and by installing water breaks.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation only when large, specialized equipment is used.
• Slopes generally are broken up enough or are short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• When establishing a new forest crop, the seedling mortality rate may be high because of the low available water capacity and the gravelly surface layer.
• Reinforcement plantings can be made until the desired stand is attained.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Suited
Management considerations:
• The potential for openland and woodland wildlife habitat is fair.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Poorly suited
Management considerations:
• The main limitations affecting urban uses are the pebbles, cobbles, and stones throughout the soil and the steepness of slope.
• The gravel in the surface layer and the pebbles, cobbles, and stones throughout the soil may cause problems in areas used for lawns or when the soil is landscaped or excavated.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 6s

BoF2—Bodine gravelly silt loam, 25 to 60 percent slopes, eroded

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Side slopes, shoulder slopes, and backslopes

Size of areas: 5 to 275 acres
Major land use: Woodland

Composition

Bodine soil and similar components: 85 to 95 percent
Contrasting components: 5 to 15 percent

Minor Components

Similar components:
• Intermingled areas of Fullerton soils
• Minvale soils on footslopes and in coves
• Soils that have more clay in the subsoil than the Bodine soil
• Soils that have a very gravelly or extremely gravelly surface layer
Contrasting components:
• Isolated areas of Rock outcrop
• Rockdell soils in narrow drainageways
• Small areas of soils that have limestone bedrock at a depth of 20 to 40 inches

Typical Profile

Surface layer:
0 to 1 inch—partially decomposed pine needles and twigs
1 to 6 inches—brown, very friable gravelly silt loam
Subsurface layer:
6 to 15 inches—yellowish brown, very friable gravelly silt loam
Subsoil:
15 to 25 inches—yellowish brown, friable very gravelly silty clay loam
25 to 36 inches—strong brown, friable very gravelly clay loam with brownish yellow mottles
36 to 50 inches—strong brown, friable gravelly clay
50 to 62 inches—mottled red, strong brown, and brownish yellow, firm gravelly clay

Soil Properties and Qualities

Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Available water capacity: Low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Extremely acid to strongly acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• The main management concern in areas used for cultivated crops is the hazard of erosion.
• The steepness of slope limits the use of most equipment.

Pasture and hay

Suitability: Unsuited
Management considerations:
• The main limitations are the low available water capacity and the steepness of slope.
• The steepness of slope increases the difficulty of properly managing pastures and limits the use of this soil as hayland.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, plant competition, and seedling mortality.
• The hazard of erosion can be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water breaks and culverts.
• Temporary roads that are no longer used can be closed and protected by seeding and by installing water breaks.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation only when large, specialized equipment is used.
• Slopes generally are broken up enough or are short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• When establishing a new forest crop, the seedling mortality rate may be high because of the low available water capacity and the gravelly surface layer.
• Reinforcement plantings can be made until the desired stand is attained.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Suited

Management considerations:
• The potential for woodland wildlife habitat is fair.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Poorly suited
Management considerations:
• The main limitations affecting urban uses are the pebbles, cobbles, and stones throughout the soil and the steepness of slope.
• The gravel in the surface layer and the pebbles, cobbles, and stones throughout the soil may cause problems in areas used for lawns or when the soil is landscaped or excavated.
• The steepness of slope is a limitation affecting most urban uses.
• A suitable alternative site should be selected.

Interpretive Group

Land capability classification: 7s

BrE—Bradyville-Rock outcrop complex, 5 to 25 percent slopes

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Side slopes and ridges
Size of areas: 5 to 65 acres
Major land use: Woodland

Composition

Bradyville soil and similar components: 40 to 80 percent
Rock outcrop and similar components: 20 to 60 percent
Contrasting components: 0 to 15 percent

Minor Components

Similar components:
• Soils that have limestone bedrock at a depth of 20 to 40 inches
• Dewey and Fullerton soils in landscape positions similar to those of the Bradyville soil
Contrasting components:
• Scattered areas of soils that have limestone bedrock within a depth of 20 inches

Typical Profile

Bradyville

Surface layer:
0 to 7 inches—dark yellowish brown, friable gravelly silt loam
Subsoil:
7 to 20 inches—strong brown, friable clay
20 to 44 inches—yellowish red, firm clay
Bedrock:
44 to 48 inches—hard, gray limestone

Rock outcrop

The Rock outcrop occurs as areas of exposed limestone or dolomite or in areas where less than 2 or 3 inches of soil material overlies the bedrock. Most outcrops protrude from a few inches to about 2 feet above the surface. The Rock outcrop supports little or no vegetation.

Soil Properties and Qualities

Bradyville

Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Strongly acid to neutral
Depth to hard bedrock: 40 to 60 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• The main management concerns in areas used for cultivated crops are the hazard of erosion, the Rock outcrop, and the steepness of slope.

Pasture and hay

Suitability: Poorly suited
Management considerations:
• The main limitations are the Rock outcrop and the steepness of slope.
• The Rock outcrop and the steepness of slope increase the difficulty of properly managing pastures and limit the use of this map unit as hayland.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, and plant competition.
• The hazard of erosion can be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water breaks and culverts.
• Temporary roads that are no longer used can be closed and protected by seeding and by installing water breaks.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation only when large, specialized equipment is used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• The depth to bedrock should be carefully considered when planting sites are selected for seedlings.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
• The potential for openland wildlife habitat is fair, and the potential for woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Poorly suited
Management considerations:
• The main limitations affecting urban uses are the Rock outcrop and the steepness of slope.
• A suitable alternative site should be selected.

Interpretive Group

Land capability classification: Bradyville—4e; Rock outcrop—8s

BrF—Bradyville-Rock outcrop complex, 25 to 50 percent slopes

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Side slopes and ridges
Size of areas: 5 to 40 acres
Major land use: Woodland

Composition

Bradyville soil and similar components: 45 to 80 percent
Rock outcrop and similar components: 20 to 55 percent
Contrasting components: 5 to 20 percent

Minor Components

Similar components:
• Moderately deep soils
• Soils that have more gravel throughout than the Bradyville soil
• Dewey and Fullerton soils in landscape positions similar to those of the Bradyville soil
Contrasting components:
• Scattered areas of soils that have limestone bedrock within a depth of 20 inches

Typical Profile

Bradyville

Surface layer:
0 to 7 inches—dark yellowish brown, friable gravelly silt loam
Subsoil:
7 to 20 inches—strong brown, friable clay
20 to 44 inches—yellowish red, firm clay
Bedrock:
44 to 48 inches—hard, gray limestone

Rock outcrop

The Rock outcrop occurs as areas of exposed limestone or dolomite or in areas where less than 2 or

3 inches of soil material overlies the bedrock. Most outcrops protrude from a few inches to about 2 feet above the surface, but some are on nearly vertical bluffs that are up to 10 feet tall. The Rock outcrop supports little or no vegetation.

Soil Properties and Qualities

Bradyville

Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Strongly acid to neutral
Depth to hard bedrock: 40 to 60 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• The main management concerns in areas used for cultivated crops are the hazard of erosion, the Rock outcrop, and the steepness of slope.

Pasture and hay

Suitability: Unsuited
Management considerations:
• The main limitations are the Rock outcrop and the steepness of slope.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, plant competition, and seedling mortality.
• The hazard of erosion can be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water breaks and culverts.
• Temporary roads that are no longer used can be closed and protected by seeding and by installing water breaks.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation only when large, specialized equipment is used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• The depth to bedrock should be carefully considered when planting sites are selected for seedlings.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
• The potential for openland wildlife habitat is fair, and the potential for woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Poorly suited
Management considerations:
• The main limitations affecting urban uses are the Rock outcrop and the steepness of slope.
• A suitable alternative site should be selected.

Interpretive Group

Land capability classification: Bradyville—7e; Rock outcrop—8s

CaF—Cataska very channery loam, 35 to 65 percent slopes, very rocky

Setting

Physiographic area: Blue Ridge
Landscape position: Steep side slopes
Size of areas: 5 to 50 acres
Major land use: Woodland

Composition

Cataska soil and similar components: 75 to 80 percent
Rock outcrop: 2 to 10 percent
Contrasting components: 20 to 25 percent

Minor Components

Similar components:
• Soils that have more clay and fewer shale channers in the subsoil than the Cataska soil
Contrasting components:
• Lostcove soils in coves
• Intermingled areas of Harmiller soils

Typical Profile

Surface layer:
0 to 1 inch—moderately decomposed leaf litter and pine needles
1 to 6 inches—brown, very friable very channery loam
Subsoil:
6 to 11 inches—yellowish brown, friable extremely channery loam with strong brown mottles
Bedrock:
11 to 48 inches—soft, fractured metashale

Soil Properties and Qualities

Drainage class: Excessively drained
Permeability: Moderately rapid
Available water capacity: Very low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to soft bedrock: 10 to 20 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• The main management concerns in areas used for cultivated crops are the hazard of erosion, the shallow root zone, the depth to bedrock, the low available water capacity, and the steepness of slope.

Pasture and hay

Suitability: Unsuited
Management considerations:
• The main limitations are the low available water capacity, the depth to bedrock, and the steepness of slope.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, plant competition, seedling mortality, and the hazard of windthrow.
• The hazard of erosion can be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water breaks and culverts.
• Temporary roads that are no longer used can be closed and protected by seeding and by installing water breaks.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation only when large, specialized equipment is used.
• Slopes generally are short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• When establishing a new forest crop, the seedling mortality rate may be high because of the shallow rooting depth, the low available water capacity, and the stoniness.
• Aspect, the depth to bedrock, and the stoniness should be carefully considered when planting sites are selected for seedlings.
• Reinforcement plantings can be made until the desired stand is attained.
• Windthrow is a hazard in some areas because of the shallow root zone.
• The windthrow hazard can be reduced by applying a carefully regulated thinning and salvage program.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Poorly suited
Management considerations:
• The potential for woodland wildlife habitat is very poor.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.

• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Unsuited
Management considerations:
• The main limitations affecting urban uses are the depth to bedrock and the steepness of slope.
• A suitable alternative site should be selected.

Interpretive Group

Land capability classification: 7s

CaG—Cataska very channery loam, 65 to 90 percent slopes, very rocky

Setting

Physiographic area: Blue Ridge
Landscape position: Steep side slopes
Size of areas: 10 to 370 acres
Major land use: Woodland

Composition

Cataska soil and similar components: 90 to 95 percent
Rock outcrop: 2 to 10 percent
Contrasting components: 5 to 10 percent

Minor Components

Similar components:
• Intermingled areas of Unicoi soils
• Soils that have clay and fewer rock fragments in the subsoil than the Cataska soil
Contrasting components:
• Lostcove soils in coves

Typical Profile

Surface layer:
0 to 1 inch—moderately decomposed leaf litter and pine needles
1 to 6 inches—brown, very friable very channery loam
Subsoil:
6 to 11 inches—yellowish brown, friable extremely channery loam with strong brown mottles
Bedrock:
11 to 48 inches—soft, fractured metashale

Soil Properties and Qualities

Drainage class: Excessively drained
Permeability: Moderately rapid
Available water capacity: Very low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to soft bedrock: 10 to 20 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• The main management concerns in areas used for cultivated crops are the hazard of erosion, the shallow root zone, the depth to bedrock, the low available water capacity, and the steepness of slope.

Pasture and hay

Suitability: Unsuited
Management considerations:
• The main limitations are the low available water capacity, the shallow root zone, the depth to bedrock, and the steepness of slope.

Woodland

Suitability: Poorly suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, plant competition, seedling mortality, and the hazard of windthrow.
• The hazard of erosion can be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water breaks and culverts.
• Temporary roads that are no longer used can be closed and protected by seeding and by installing water breaks.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation only when large, specialized equipment is used.
• Slopes generally are broken up enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• When establishing a new forest crop, the seedling mortality rate can be high because of the shallow rooting depth and the low available water capacity.
• Aspect and the depth to bedrock should be carefully

considered when planting sites are selected for seedlings.
• Reinforcement plantings can be made until the desired stand is attained.
• Windthrow is a hazard in some areas because of the shallow root zone.
• The windthrow hazard can be reduced by applying a carefully regulated thinning and salvage program.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Poorly suited
Management considerations:
• The potential for woodland wildlife habitat is very poor.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Unsuited
Management considerations:
• The main limitations affecting urban uses are the depth to bedrock and the steepness of slope.
• A suitable alternative site should be selected.

Interpretive Group

Land capability classification: 7s

CgC—Coghill-Apison complex, 5 to 12 percent slopes

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Dissected ridges and side slopes
Size of areas: 5 to 100 acres
Major land use: Hay, pasture, or woodland

Composition

Coghill soil and similar components: 30 to 65 percent
Apison soil and similar components: 30 to 60 percent
Contrasting components: 5 to 15 percent

Minor Components

Similar components:
• Soils that have less clay in the subsoil than the Coghill and Apison soils
• Eroded and severely eroded soils
• Small areas of Corryton and Townley soils
Contrasting components:
• Intermingled areas of Nonaburg and Coile soils
• A few areas of disturbed soils

Typical Profile

Coghill

Surface layer:
0 to 1 inch—partially decomposed hardwood and evergreen litter
1 to 5 inches—brown, very friable sandy loam
Subsurface layer:
5 to 7 inches—dark yellowish brown, very friable sandy loam
Subsoil:
7 to 29 inches—yellowish red, friable clay with brown and yellow mottles
29 to 38 inches—yellowish red, friable sandy clay loam with yellowish brown mottles
Substratum:
38 to 58 inches—brownish yellow, friable sandy loam with yellowish red mottles
58 to 78 inches—brownish yellow, friable loamy sand with yellowish red mottles

Apison

Surface layer:
0 to 3 inches—brown, friable loam
Subsoil:
3 to 19 inches—yellowish red, friable clay loam with brown mottles
19 to 22 inches—strong brown, friable channery clay loam with brownish yellow mottles
Substratum:
22 to 60 inches—brown, friable sandy loam; layers of olive yellow, soft, sandy shale bedrock in the lower part

Soil Properties and Qualities

Coghill

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None

Soil reaction: Very strongly acid to moderately acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Moderate

Apison

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to soft bedrock: 20 to 40 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Suited
Management considerations:
• The main management concern in areas used for cultivated crops is the hazard of erosion.
• The moderate available water capacity in areas of the Apison soil is an additional limitation.
• Erosion is a moderate hazard if a conventional tillage system is used.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• A crop rotation helps to control erosion in most areas.
• Terraces, diversions, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and hay

Suitability: Well suited
Management considerations:
• Few limitations affect the management of pasture and hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
• The potential for openland and woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Suited
Management considerations:
• The main limitations affecting urban uses are the moderate permeability, the clayey subsoil, the shrink-swell potential, and the depth to bedrock in areas of the Apison soil.
• The moderate permeability and clayey texture in the subsoil are limitations affecting some sanitary facilities and building site development.
• The shrink-swell potential in the subsoil may be a problem when footers and basements are constructed.
• The depth to bedrock in areas of the Apison soil is a limitation affecting some building site development.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 3e

CgD—Coghill-Apison complex, 12 to 25 percent slopes

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Dissected narrow ridges and side slopes
Size of areas: 5 to 100 acres
Major land use: Woodland, hay, or pasture

Composition

Coghill soil and similar components: 30 to 65 percent
Apison soil and similar components: 20 to 50 percent
Contrasting components: 10 to 15 percent

Minor Components

Similar components:
• Soils that have less clay in the subsoil than the Coghill and Apison soils
• Corryton and Townley soils
Contrasting components:
• Intermingled areas of Coile soils
• Isolated areas of Rock outcrop on shoulder slopes and near slope breaks

Typical Profile

Coghill

Surface layer:
0 to 1 inch—partially decomposed hardwood and evergreen litter
1 to 5 inches—brown, very friable sandy loam
Subsurface layer:
5 to 7 inches—dark yellowish brown, very friable sandy loam
Subsoil:
7 to 29 inches—yellowish red, friable clay with brown and yellow mottles
29 to 38 inches—yellowish red, friable sandy clay loam with yellowish brown mottles
Substratum:
38 to 58 inches—brownish yellow, friable sandy loam with yellowish red mottles
58 to 78 inches—brownish yellow, friable loamy sand with yellowish red mottles

Apison

Surface layer:
0 to 3 inches—brown, friable loam
Subsoil:
3 to 19 inches—yellowish red, friable clay loam with brown mottles
19 to 22 inches—strong brown, friable channery clay loam with brownish yellow mottles
Substratum:
22 to 60 inches—brown, friable sandy loam; layers of olive yellow, soft, sandy shale bedrock in the lower part

Soil Properties and Qualities

Coghill

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid to moderately acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Moderate

Apison

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to soft bedrock: 20 to 40 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Poorly suited
Management considerations:
• The main management concern in areas used for cultivated crops is the hazard of erosion.
• The moderate available water capacity in areas of the Apison soil is an additional limitation.
• Erosion is a severe hazard if a conventional tillage system is used.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• A long-term crop rotation helps to control erosion in most areas.
• Diversions, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and hay

Suitability: Suited

Management considerations:
• The main limitations are the moderate available water capacity of the Apison soil and the steepness of slope.
• The steepness of slope increases the difficulty of properly managing pastures and limits the use of these soils as hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, and plant competition.
• The hazard of erosion can be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water breaks and culverts.
• Temporary roads that are no longer used can be closed and protected by seeding and by installing water breaks.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation only when large, specialized equipment is used.
• Slopes generally are broken up enough or are short enough that conventional equipment can be used.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Suited
Management considerations:
• The potential for openland wildlife habitat is fair, and the potential for woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Suited
Management considerations:
• The main limitations affecting urban uses are the moderate permeability, the clayey subsoil, the shrink-swell potential, and the steepness of slope in areas of the Coghill and Apison soils. The depth to bedrock is an additional limitation in areas of the Apison soil.
• The moderate permeability and the clayey subsoil are limitations affecting some sanitary facilities and building site development.
• The shrink-swell potential in the subsoil may be a problem when footers and basements are constructed.
• The steepness of slope is a limitation affecting most urban uses.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 4e

CnC2—Coile silt loam, 5 to 12 percent slopes, eroded

Setting

Physiographic area: Southern Appalachian Ridges and Valleys (in the Broad Valleys area)
Landscape position: Broad ridge crests and side slopes
Size of areas: 5 to several hundred acres
Major land use: Hay, pasture, or woodland

Composition

Coile soil and similar components: 85 to 100 percent
Contrasting components: 0 to 15 percent

Minor Components

Similar components:
• Scattered areas of Apison and Townley soils

Contrasting components:
• Intermingled areas of Corryton soils

Typical Profile

Surface layer:
0 to 3 inches—dark brown, very friable silt loam
Subsoil:
3 to 10 inches—dark yellowish brown and strong brown, friable very channery silt loam and channery clay
Substratum:
10 to 18 inches—strong brown, friable channery clay with light brownish yellow mottles
Soft bedrock:
18 to 24 inches—light olive brown and light yellowish brown, tilted, acid shale

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately slow or moderate
Available water capacity: Very low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid to moderately acid
Depth to soft bedrock: 9 to 20 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Poorly suited
Management considerations:
• The main management concerns in areas used for cultivated crops are the hazard of erosion, the shallow root zone, and the very low available water capacity.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• A crop rotation helps to control erosion in most areas.
• Terraces, diversions, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and hay

Suitability: Suited
Management considerations:
• The main limitation is the very low available water capacity.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, plant competition, seedling mortality, and the hazard of windthrow.
• The hazard of erosion can be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water breaks and culverts.
• Temporary roads that are no longer used can be closed and protected by seeding and by installing water breaks.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• When establishing a new forest crop, the seedling mortality rate may be high because of the very low or low available water capacity.
• The depth to bedrock should be carefully considered when planting sites are selected for seedlings.
• Reinforcement plantings can be made until the desired stand is attained.
• Windthrow is a hazard in some areas because of the shallow root zone.
• The windthrow hazard can be reduced by applying a carefully regulated thinning and salvage program.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
• The potential for openland wildlife habitat is poor, and the potential for woodland wildlife habitat is fair.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.

• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Poorly suited
Management considerations:
• The main limitations affecting urban uses are the moderately slow permeability and the depth to bedrock.
• A suitable alternative site should be selected.

Interpretive Group

Land capability classification: 4e

CnD2—Coile silt loam, 12 to 25 percent slopes, eroded

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Narrow ridges and side slopes
Size of areas: 5 to 175 acres
Major land use: Pasture, hay, or woodland

Composition

Coile soil and similar components: 75 to 95 percent
Contrasting components: 5 to 25 percent

Minor Components

Similar components:
• Scattered areas of Apison and Townley soils
• Severely eroded soils
Contrasting components:
• Intermingled areas of Corryton soils
• Small areas of Waynesboro and Etowah soils

Typical Profile

Surface layer:
0 to 3 inches—dark brown, very friable silt loam
Subsoil:
3 to 10 inches—dark yellowish brown and strong brown, friable very channery silt loam and channery clay
Substratum:
10 to 18 inches—strong brown, friable channery clay with light brownish yellow mottles
Soft bedrock:
18 to 24 inches—light olive brown and light yellowish brown, tilted, acid shale

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately slow or moderate
Available water capacity: Very low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid to moderately acid
Depth to soft bedrock: 9 to 20 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• The main management concerns in areas used for cultivated crops are the hazard of erosion, the shallow root zone, the very low available water capacity, and the depth to bedrock.

Pasture and hay

Suitability: Poorly suited
Management considerations:
• The main limitations are the very low available water capacity and the steepness of slope.
• The steepness of slope increases the difficulty of proper pasture management and limits the use of this soil as hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, plant competition, seedling mortality, and the hazard of windthrow.
• The hazard of erosion can be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water breaks and culverts.
• Temporary roads that are no longer used can be closed and protected by seeding and by installing water breaks.

• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation only when large, specialized equipment is used.
• Slopes generally are short enough that conventional equipment can be used.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• Windthrow is a hazard in some areas because of the shallow root zone.
• The windthrow hazard can be reduced by applying a carefully regulated thinning and salvage program.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Suited
Management considerations:
• The potential for woodland wildlife habitat is fair.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Unsuited
Management considerations:
• The main limitations affecting urban uses are the moderately slow permeability, the depth to bedrock, and the steepness of slope.
• A suitable alternative site should be selected.

Interpretive Group

Land capability classification: 6e

CnE3—Coile silt loam, 5 to 35 percent slopes, gullied

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Narrow ridge crests and side slopes
Size of areas: 10 to 105 acres
Major land use: Pasture, hay, or woodland

Composition

Coile soil and similar components: 75 to 95 percent
Contrasting components: 5 to 25 percent

Minor Components

Similar components:
• Scattered areas of Apison and Townley soils
Contrasting components:
• Intermingled areas of Corryton soils
• Soils that have redder colors in the subsoil than the Coile soil

Typical Profile

Surface layer:
0 to 3 inches—dark brown, very friable silt loam
Subsoil:
3 to 10 inches—dark yellowish brown and strong brown, friable very channery silt loam and channery clay
Substratum:
10 to 18 inches—strong brown, friable channery clay with light brownish yellow mottles
Soft bedrock:
18 to 24 inches—light olive brown and light yellowish brown, tilted, acid shale

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately slow or moderate
Available water capacity: Very low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid to moderately acid
Depth to soft bedrock: 9 to 20 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• The main management concerns in areas used for cultivated crops are the hazard of erosion, the very low available water capacity, the shallow root zone, the depth to bedrock, and the gullies.

Pasture and hay

Suitability: Poorly suited
Management considerations:
• The main limitation is the very low available water capacity.

• The steepness of slope increases the difficulty of properly managing pastures and limits the use of this soil as hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, plant competition, seedling mortality, and the hazard of windthrow.
• The hazard of erosion can be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water breaks and culverts.
• Temporary roads that are no longer used can be closed and protected by seeding and by installing water breaks.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation only when large, specialized equipment is used.
• Slopes generally are short enough that conventional equipment can be used.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• Windthrow is a hazard in some areas because of the shallow root zone.
• The windthrow hazard can be reduced by applying a carefully regulated thinning and salvage program.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Suited
Management considerations:
• The potential for woodland wildlife habitat is fair.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Unsuited
Management considerations:
• The main limitations affecting urban uses are the moderately slow permeability, the depth to bedrock, and the steepness of slope.
• A suitable alternative site should be selected.

Interpretive Group

Land capability classification: 7e

CoC2—Collegedale silt loam, 5 to 12 percent slopes, eroded

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Convex ridge crests and side slopes
Size of areas: 5 to 40 acres
Major land use: Pasture, hay, or woodland.

Composition

Collegedale soil and similar components: 85 to 90 percent
Contrasting components: 10 to 15 percent

Minor Components

Similar components:
• Scattered areas of Corryton, Decatur, Fullerton, Minvale, and Waynesboro soils
Contrasting components:
• Hamblen Steadman, and Toccoa soils along streams and narrow drainageways
• Intermingled areas of Apison, Coile, and Townley soils that are predominantly underlain by shale bedrock
• Isolated areas of Bradyville soils
• Isolated areas of Rock outcrop

Typical Profile

Surface layer:
0 to 6 inches—yellowish brown, friable silt loam
Subsoil:
6 to 17 inches—yellowish red, firm clay
17 to 26 inches—strong brown, firm clay with yellowish red mottles

26 to 45 inches—yellowish red, firm clay with brown and yellow mottles
45 to 53 inches—mottled yellowish red, yellowish brown, strong brown, and white, firm silty clay
53 to 65 inches—yellowish red, firm clay with white and yellowish brown mottles

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Poorly suited
Management considerations:
• The main management concern is the hazard of erosion.
• Erosion is a moderate hazard if a conventional tillage system is used.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• A crop rotation that includes grasses and legumes helps to control erosion.
• Terraces, diversions, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and hay

Suitability: Well suited
Management considerations:
• Few limitations affect the management of pasture and hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
• The potential for openland and woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Trees and brush along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Poorly suited
Management considerations:
• The main limitations for urban uses are the moderately slow permeability, the clayey subsoil, low strength, the shrink-swell potential, and the steepness of slope.
• The moderate permeability and the clayey subsoil are limitations affecting some sanitary facilities and building site development.
• Low strength may be a problem on sites for local roads and streets or when the soil is used as a source of roadfill.
• The shrink-swell potential in the subsoil may be a problem when footers and basements are constructed.
• The steepness of slope is a limitation affecting most urban uses.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 4e

CrB—Corryton-Needmore complex, 2 to 5 percent slopes, rocky

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Dissected ridge crests and side slopes
Size of areas: 5 to 50 acres
Major land use: Pasture, hay, cropland, or woodland

Composition

Corryton soil and similar components: 40 to 80 percent
Needmore soil and similar components: 20 to 60 percent
Rock outcrop: 0.1 to 2 percent
Contrasting components: 5 to 15 percent

Minor Components

Similar components:
• Soils that have less clay and more rock fragments in the subsoil than the Corryton and Needmore soils
Contrasting components:
• Scattered areas of soils that are less than 20 inches deep over bedrock

Typical Profile

Corryton

Surface layer:
0 to 9 inches—dark yellowish brown, friable silt loam
Subsoil:
9 to 17 inches—strong brown, friable silty clay loam
17 to 26 inches—yellowish brown, friable silty clay with pale yellow and yellowish red mottles
26 to 41 inches—yellowish brown, friable clay with pale yellow and yellowish red mottles
Substratum:
41 to 75 inches—brownish yellow, firm channery silty clay loam with pale yellow and yellowish red mottles

Needmore

Surface layer:
0 to 7 inches—dark yellowish brown, very friable silt loam
Subsoil:
7 to 12 inches—yellowish brown, friable silty clay loam
12 to 26 inches—strong brown, friable clay loam with yellowish brown mottles
26 to 31 inches—strong brown, firm clay with yellowish brown mottles
31 to 35 inches—strong brown, firm channery clay
Soft bedrock:
35 to 40 inches—soft, brownish shale

Soil Properties and Qualities

Corryton

Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid to moderately acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Moderate

Needmore

Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Strongly acid to slightly acid
Depth to soft bedrock: 20 to 40 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Suited
Management considerations:
• The main management concern in areas used for cultivated crops is the hazard of erosion.
• The moderate available water capacity in areas of the Needmore soil is an additional limitation.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• Terraces, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and hay

Suitability: Well suited
Management considerations:
• The main limitation is the moderate available water capacity in areas of the Needmore soil.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Well suited
Management considerations:
- Few limitations affect forest management.
- Plant competition from undesirable species may be a problem when establishing a new forest crop.
- Proper site preparation helps to control the plant competition that may occur immediately after planting.
- Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
- The potential for openland and woodland wildlife habitat is good.
- Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
- Field borders and filter strips provide good wildlife habitat.
- Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
- Buffer zones along streams provide benefits to wildlife as well as erosion control.
- Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
- Food plots or areas of green browse can be established along logging roads and trails.
- The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
- Den trees should not be harvested.
- Brush piles or other nesting sites are needed.

Urban uses

Suitability: Suited
Management considerations:
- The main limitations affecting urban uses are the moderately slow permeability, the clayey subsoil, the shrink-swell potential, and the depth to bedrock.
- The moderately slow permeability and the clayey subsoil are limitations affecting some sanitary facilities and building site development.
- The shrink-swell potential in the subsoil may be a problem when footers and basements are constructed.
- The depth to bedrock is a limitation affecting some building site development and sanitary facilities in areas of the Needmore soil.
- Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: Corryton—2e; Needmore—3e

CtB2—Corryton-Townley complex, 2 to 5 percent slopes, eroded

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Broad ridge crests and side slopes
Size of areas: 5 to 100 acres
Major land use: Pasture, hay, or cropland

Composition

Corryton soil and similar components: 70 to 95 percent
Townley soil and similar components: 5 to 20 percent
Contrasting components: 5 to 15 percent

Minor Components

Similar components:
- Scattered areas of soils that have less clay in the subsoil than the Corryton and Townley soils

Contrasting components:
- Severely eroded Coile soils

Typical Profile

Corryton

Surface layer:
0 to 9 inches—dark yellowish brown, friable silt loam
Subsoil:
9 to 17 inches—strong brown, friable silty clay loam
17 to 26 inches—yellowish brown, friable silty clay with pale yellow and yellowish red mottles
26 to 41 inches—yellowish brown, friable clay with pale yellow and yellowish red mottles
Substratum:
41 to 75 inches—brownish yellow, firm channery silty clay loam with pale yellow and yellowish red mottles

Townley

Surface layer:
0 to 5 inches—strong brown, friable silt loam
Subsoil:
5 to 24 inches—yellowish red, friable clay with brownish yellow mottles
Substratum:
24 to 28 inches—yellowish red, firm silty clay loam with brownish yellow and strong brown mottles

Soft bedrock:
28 to 44 inches—yellowish red, firm silty clay loam and light olive brown sandy shale
44 to 50 inches—light olive brown, tilted and fractured, sandy shale

Soil Properties and Qualities

Corryton

Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid to moderately acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Moderate

Townley

Drainage class: Well drained
Permeability: Slow
Available water capacity: Low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to soft bedrock: 20 to 40 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Well suited
Management considerations:
• Few limitations affect cropland.
• The low available water capacity in areas of the Townley soil may adversely affect some crops.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• Terraces, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and hay

Suitability: Well suited
Management considerations:
• Few limitations affect the management of pasture and hayland.
• The low available water capacity in areas of the Townley soil is a limitation.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Well suited
Management considerations:
• The main management concerns are plant competition and the hazard of windthrow.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• Windthrow is a hazard in some areas of the Townley soil because of the moderately deep root zone.
• The windthrow hazard can be reduced by applying a carefully regulated thinning and salvage program.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
• The potential for openland and woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Suited
Management considerations:
• The main limitations affecting urban uses are the moderately slow permeability of the Corryton soil; the depth to bedrock and the slow permeability of the Townley soil; and the clayey subsoil, low strength, and shrink-swell potential of both soils.

• The moderately slow and slow permeability and the clayey subsoil are limitations affecting some sanitary facilities and building site development.
• Low strength may be a problem on sites for local roads and streets or when the soils are used as a source of roadfill.
• The shrink-swell potential in the subsoil may be a problem when footers and basements are constructed.
• The depth to bedrock in areas of the Townley soil is a limitation affecting some building site development.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: Corryton—2e; Townley—3e

CtC2—Corryton-Townley complex, 5 to 12 percent slopes, eroded

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Ridge crests and side slopes
Size of areas: 5 to 145 acres
Major land use: Pasture, hay, or cropland; some areas used as woodland or for pine plantations

Composition

Corryton soil and similar components: 45 to 70 percent
Townley soil and similar components: 30 to 55 percent
Contrasting components: 5 to 10 percent

Minor Components

Similar components:
• Intermingled areas of Apison soils
• Area of soils that have red colors in the subsoil
Contrasting components:
• Coile soils near slope breaks and in severely eroded areas

Typical Profile

Corryton

Surface layer:
0 to 9 inches—dark yellowish brown, friable silt loam
Subsoil:
9 to 17 inches—strong brown, friable silty clay loam
17 to 26 inches—yellowish brown, friable silty clay with pale yellow and yellowish red mottles
26 to 41 inches—yellowish brown, friable clay with pale yellow and yellowish red mottles
Substratum:
41 to 75 inches—brownish yellow, firm channery silty clay loam with pale yellow and yellowish red mottles

Townley

Surface layer:
0 to 5 inches—strong brown, friable silt loam
Subsoil:
5 to 24 inches—yellowish red, friable clay with brownish yellow mottles
Substratum:
24 to 28 inches—yellowish red, firm silty clay loam with brownish yellow and strong brown mottles
Bedrock:
28 to 44 inches—yellowish red, firm silty clay loam with layers of light olive brown sandy shale
44 to 50 inches—light olive brown, tilted and fractured, sandy shale

Soil Properties and Qualities

Corryton

Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid to moderately acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Moderate

Townley

Drainage class: Well drained
Permeability: Slow
Available water capacity: Low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to soft bedrock: 20 to 40 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Suited
Management considerations:
• The main management concern in areas used for cultivated crops is the hazard of erosion.
• The low available water capacity is an additional limitation in areas of the Townley soil.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control

erosion, increase the rate of infiltration, and maintain soil tilth.
• A crop rotation helps to control erosion in most areas.
• Terraces, diversions, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and hay

Suitability: Well suited
Management considerations:
• Few limitations affect the management of pasture and hayland.
• The low available water capacity in areas of the Townley soil is a limitation.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices (fig. 5).
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Well suited
Management considerations:
• The main management concerns are plant competition and the hazard of windthrow.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• Windthrow is a hazard in some areas of the Townley soil because of the moderately deep root zone.
• The windthrow hazard can be reduced by applying a carefully regulated thinning and salvage program.

Figure 5.—An area of Corryton-Townley complex, 5 to 12 percent slopes, eroded. A well planned clipping and harvesting schedule helps to maintain a healthy stand of hay and pasture plants.

• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
• The potential for openland and woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Suited
Management considerations:
• The main limitations affecting urban uses are the moderately slow permeability in the Corryton soil; the slow permeability and the depth to bedrock in areas of the Townley soil; and the clayey subsoil, low strength, the shrink-swell potential, and the steepness of slope in areas of both soils.
• The moderately slow and slow permeability and the clayey subsoil are limitations affecting some sanitary facilities and building site development.
• Low strength may be a problem on sites for local roads and streets or when the soils are used as a source of roadfill.
• The shrink-swell potential in the subsoil may be a problem when footers and basements are constructed.
• The depth to bedrock in areas of the Townley soil is a limitation affecting some building site development.
• The steepness of slope is a limitation affecting most urban uses.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: Corryton—3e; Townley—4e

CUC—Corryton-Urban land complex, 2 to 12 percent slopes

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Ridge crests and side slopes
Size of areas: 245 acres
Major land use: Urban areas—homesites, lawns, industrial parks, schools, roads, parking lots, and streets

Composition

Corryton soil and similar components: 60 to 75 percent
Urban land and similar components: 25 to 40 percent
Contrasting components: 5 to 15 percent

Minor Components

Similar components:
• Intermingled areas of Apison soils
• Soils that have redder colors than the Corryton soil
Contrasting components:
• Coile soils near slope breaks and in severely eroded areas

Typical Profile

Corryton

Surface layer:
0 to 9 inches—dark yellowish brown, friable silt loam
Subsoil:
9 to 17 inches—strong brown, friable silty clay loam
17 to 26 inches—yellowish brown, friable silty clay with pale yellow and yellowish red mottles
26 to 41 inches—yellowish brown, friable clay with pale yellow and yellowish red mottles
Substratum:
41 to 75 inches—brownish yellow, firm channery silty clay loam with pale yellow and yellowish red mottles

Urban land

The Urban land mostly consists of areas where the surface is covered by roads, streets, parking lots, commercial buildings, houses, and other types of impervious ground cover. In places the natural drainage pattern has been altered by a system of ditches and storm drains. The underlying soil material

is not observable. A typical profile of Urban land is not given.

Soil Properties and Qualities

Corryton

Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid to moderately acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Moderate

Use and Management

Urban uses

Suitability: Suited
Management considerations:
• The hazard of erosion is a major management concern during construction.
• A well designed erosion-control plan is needed.
• Erosion barriers, diversions, and rocklined or vegetated waterways are important management practices.
• Timely revegetation of bare areas should be a priority.
• Plant species that can tolerate a wide range of soil conditions grow best.
• Providing a good seedbed, maintaining the proper fertility level, and mulching seeded areas help to establish a protective cover of vegetation.
• Intensive revegetation measures, such as hydroseeding or sodding, may be needed in problem areas.
• A layer of concrete, asphalt, coarse gravel, gabion stone, or riprap helps to control erosion in areas where vegetation cannot be established.
• Differential settling is a management concern in areas of fill material.
• The load-bearing strength, the shrink-swell potential, surface runoff, and storm drainage management are concerns affecting urban development.
• The steepness of slope and the shrink-swell potential in the subsoil of the Corryton soil are the major limitations on sites for dwellings.
• Designing buildings and structures so that they conform to the natural slope of the land reduces the need for land shaping.
• Footers and basement walls of dwellings may need additional reinforcement.
• The steepness of slope and the moderately slow permeability in the subsoil of the Corryton soil are moderate limitations on sites for septic tank absorption fields.
• Designing septic tank systems so that they conform to the existing slope and installing specially designed systems help to overcome the limitations.
• The steepness of slope is a moderate limitation in areas used for lawns or when the soil is landscaped.
• The steepness of slope and the shrink-swell potential are moderate limitations on sites for small commercial buildings.
• Land shaping helps to overcome the slope in areas used for lawns, in landscaped areas, and on sites for small commercial buildings.
• Footers and concrete floors of small commercial buildings may need additional reinforcement.
• Low strength, the shrink-swell potential, and the steepness of slope are moderate limitations on sites for local roads and streets.
• Adding gravel or other suitable subgrade material helps to prevent the road damage caused by low strength and by shrinking and swelling.
• Designing roads so that they follow the natural contour and land shaping help to overcome the slope.
• Onsite investigation is needed to determine the limitations affecting any proposed use.

Interpretive Group

Land capability classification: Corryton—3e; Urban land—none assigned

DcB2—Decatur silt loam, 2 to 5 percent slopes, eroded

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Ridge crests
Size of areas: 5 to 120 acres
Major land use: Pasture, hay, or cultivated crops

Composition

Decatur soil and similar components: 85 to 90 percent
Contrasting components: 10 to 15 percent

Minor Components

Similar components:
• Intermingled areas of Dewey, Fullerton, Collegedale, and Waynesboro soils
• Scattered areas of soils that have less clay in the subsoil than the Decatur soil
Contrasting components:
• Emory, Hamblen, and Pettyjon soils in depressions and along drainageways

Typical Profile

Surface layer:
0 to 6 inches—dark reddish brown, friable silt loam
Subsoil:
6 to 28 inches—dark red, friable clay
28 to 67 inches—dark red, firm clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid to moderately acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Well suited
Management considerations:
- Few limitations affect cropland.
- Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
- Terraces, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and hay

Suitability: Well suited
Management considerations:
- Few limitations affect the management of pasture and hayland.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Well suited
Management considerations:
- Few limitations affect forest management.
- Plant competition from undesirable species may be a problem when establishing a new forest crop.
- Proper site preparation helps to control the plant competition that may occur immediately after planting.
- Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
- The potential for openland and woodland wildlife habitat is good.
- Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
- Field borders and filter strips provide good wildlife habitat.
- Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
- Trees and brush along streams provide benefits to wildlife as well as erosion control.
- Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
- Food plots or areas of green browse can be established along logging roads and trails.
- The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
- Den trees should not be harvested.
- Brush piles or other nesting sites are needed.

Urban uses

Suitability: Suited
Management considerations:
- The main limitations are the moderate permeability, the clayey subsoil, low strength, and the shrink-swell potential.
- The moderate permeability and the clayey subsoil are limitations affecting some sanitary facilities and building site development.
- Low strength may be a problem on sites for local roads and streets or when the soil is used as a source of roadfill.
- The shrink-swell potential in the subsoil may be a problem when footers and basements are constructed.
- Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 2e

DcC2—Decatur silt loam, 5 to 12 percent slopes, eroded

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Ridge crests and side slopes

Size of areas: 5 to 60 acres
Major land use: Hay, pasture, or cultivated crops

Composition

Decatur soil and similar components: 85 to 90 percent
Contrasting components: 10 to 15 percent

Minor Components

Similar components:
- Intermingled areas of Collegedale, Dewey, Etowah, and Waynesboro soils

Contrasting components:
- Emory, Hamblen, and Pettyjon soils in depressions and along drainageways

Typical Profile

Surface layer:
0 to 6 inches—dark reddish brown, friable silt loam
Subsoil:
6 to 28 inches—dark red, friable clay
28 to 67 inches—dark red, firm clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid to moderately acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Suited
Management considerations:
- The main management concern is the hazard of erosion.
- Erosion is a moderate hazard if a conventional tillage system is used.
- Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
- A crop rotation that includes grasses and legumes helps to control erosion.
- Terraces, diversions, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and hay

Suitability: Well suited
Management considerations:
- Few limitations affect the management of pasture and hayland.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Well suited
Management considerations:
- Few limitations affect forest management.
- Plant competition from undesirable species may be a problem when establishing a new forest crop.
- Proper site preparation helps to control the plant competition that may occur immediately after planting.
- Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
- The potential for openland and woodland wildlife habitat is good.
- Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
- Field borders and filter strips provide good wildlife habitat.
- Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
- Trees and brush along streams provide benefits to wildlife as well as erosion control.
- Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
- Food plots or areas of green browse can be established along logging roads and trails.
- The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
- Den trees should not be harvested.
- Brush piles or other nesting sites are needed.

Urban uses

Suitability: Suited
Management considerations:
- The main limitations are the moderate permeability, the clayey subsoil, low strength, the shrink-swell potential, and the steepness of slope.
- The moderate permeability and the clayey subsoil

are limitations affecting some sanitary facilities and building site development.

- Low strength may be a problem on sites for local roads and streets or when the soil is used as a source of roadfill.
- The shrink-swell potential in the subsoil may be a problem when footers and basements are constructed.
- The steepness of slope is a limitation affecting most urban uses.
- Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 3e

DcD2—Decatur silt loam, 12 to 20 percent slopes, eroded

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Ridge crests and side slopes
Size of areas: 5 to 60 acres
Major land use: Hay, pasture, or cultivated crops

Composition

Decatur soil and similar components: 85 to 90 percent
Contrasting components: 10 to 15 percent

Minor Components

Similar components:
- Intermingled areas of Collegedale and Waynesboro soils
- Scattered areas of soils that have less clay in the subsoil than the Decatur soil

Contrasting components:
- Emory soils in depressions and along drainageways

Typical Profile

Surface layer:
0 to 6 inches—dark reddish brown, friable silt loam
Subsoil:
6 to 28 inches—dark red, friable clay
28 to 67 inches—dark red, firm clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid to moderately acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Poorly suited
Management considerations:
- The main management concern is the hazard of erosion.
- Erosion is a severe hazard if a conventional tillage system is used.
- Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
- A crop rotation that includes grasses and legumes helps to control erosion.
- Grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and hay

Suitability: Suited
Management considerations:
- The main limitation is the steepness of slope.
- The steepness of slope increases the difficulty of properly managing pastures and limits the use of this soil as hayland.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Suited
Management considerations:
- The main management concerns are the hazard of erosion, the equipment limitation, and plant competition.
- The hazard of erosion can be reduced by locating roads and trails as closely on the contour as possible.
- Permanent access roads can be protected by spreading gravel on the road surface and by installing water breaks and culverts.
- Temporary roads that are no longer used can be closed and protected by seeding and by installing water breaks.
- Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
- The steepness of slope generally is a limitation only when large, specialized equipment is used.

• Slopes generally are short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cutting or by applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Suited
Management considerations:
• The potential for openland wildlife habitat is fair, and the potential for woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Trees and brush along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Poorly suited
Management considerations:
• The main limitations are the moderate permeability, the clayey subsoil, low strength, the shrink-swell potential, and the steepness of slope.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 4e

DeB—Dewey silt loam, 2 to 5 percent slopes

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Broad ridge crests
Size of areas: 5 to 45 acres
Major land use: Hay, pasture, or cropland

Composition

Dewey soil and similar components: 85 to 95 percent
Contrasting components: 5 to 15 percent

Minor Components

Similar components:
• Scattered areas of Waynesboro, Decatur, and Etowah soils
• Dewey soils that have a surface layer of loam, silty clay loam, or clay loam
Contrasting components:
• Narrow strips of Hamblen and Pettyjon soils along drainageways and in depressions
• Isolated areas of Bradyville soils intermingled with areas of Rock outcrop

Typical Profile

Surface layer:
0 to 9 inches—dark reddish brown, very friable silt loam
Subsoil:
9 to 35 inches—red, friable clay
35 to 61 inches—red, friable clay with strong brown and reddish yellow mottles
61 to 72 inches—yellowish red, friable clay with reddish yellow mottles

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid to moderately acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Well suited
Management considerations:
• Few limitations affect cropland.

• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• Terraces, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and hay

Suitability: Well suited
Management considerations:
• Few limitations affect the management of pasture and hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
• The potential for openland and woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Suited
Management considerations:
• Few limitations affect urban uses.
• The moderate permeability, the shrink-swell potential, and the clayey subsoil are limitations affecting some sanitary facilities and building site development.
• Low strength may be a problem on sites for local roads and streets or when the soil is used as a source of roadfill.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 2e

DwC2—Dewey silty clay loam, 5 to 12 percent slopes, eroded

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Broad ridge crests and side slopes
Size of areas: 5 to 155 acres
Major land use: Hay, pasture, or cropland

Composition

Dewey soil and similar components: 85 to 95 percent
Contrasting components: 5 to 15 percent

Minor Components

Similar components:
• Scattered areas of Waynesboro, Decatur, and Etowah soils
• Dewey soils that have a surface layer of silt loam, loam, or clay loam
Contrasting components:
• Narrow strips of Hamblen and Pettyjon soils along drainageways and in depressions
• Isolated areas of Bradyville soils intermingled with areas of Rock outcrop

Typical Profile

Surface layer:
0 to 6 inches—reddish brown, friable silty clay loam
Subsoil:
6 to 48 inches—red, friable clay
48 to 60 inches—dark red, friable clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid to moderately acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Suited
Management considerations:
• The main management concern is the hazard of erosion.
• Erosion is a moderate hazard if a conventional tillage system is used.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• A crop rotation that includes grasses and legumes helps to control erosion.
• Terraces, diversions, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and hay

Suitability: Well suited
Management considerations:
• Few limitations affect the management of pasture and hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
• The potential for openland and woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Suited
Management considerations:
• The main limitations are the moderate permeability, the clayey subsoil, low strength, and the steepness of slope.
• The moderate permeability, the shrink-swell potential, and the clayey subsoil are limitations affecting some sanitary facilities and building site development.
• Low strength may be a problem on sites for local roads and streets or when the soil is used as a source of roadfill.
• The steepness of slope is a limitation affecting most urban uses.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 3e

DwD2—Dewey silty clay loam, 12 to 25 percent slopes, eroded

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Ridge crests and side slopes
Size of areas: 5 to 105 acres

Major land use: Hay, pasture, or cultivated crops

Composition

Dewey soil and similar components: 85 to 95 percent
Contrasting components: 5 to 15 percent

Minor Components

Similar components:
• Scattered areas of Waynesboro, Decatur, and Etowah soils
• Dewey soils that have a surface layer of silt loam, loam, or clay loam
Contrasting components:
• Narrow strips of Hamblen and Pettyjon soils along drainageways and in depressions
• Isolated areas of Bradyville soils intermingled with areas of Rock outcrop
• Scattered areas of Collegedale soils

Typical Profile

Surface layer:
0 to 6 inches—reddish brown, friable silty clay loam
Subsoil:
6 to 48 inches—red, friable clay
48 to 60 inches—dark red, friable clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid to moderately acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Poorly suited
Management considerations:
• The main management concern is the hazard of erosion.
• Erosion is a severe hazard if a conventional tillage system is used.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• A long-term crop rotation that includes grasses and legumes helps to control erosion.
• Diversions, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and hay

Suitability: Suited
Management considerations:
• The main limitation is the steepness of slope.
• The steepness of slope increases the difficulty of properly managing pastures and limits the use of this soil as hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, and plant competition.
• The hazard of erosion can be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water breaks and culverts.
• Temporary roads that are no longer used can be closed and protected by seeding and by installing water breaks.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation only when large, specialized equipment is used.
• Slopes generally are broken up enough or are short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Suited
Management considerations:
• The potential for openland wildlife habitat is fair, and the potential for woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.

- Field borders and filter strips provide good wildlife habitat.
- Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
- Buffer zones along streams provide benefits to wildlife as well as erosion control.
- Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
- Food plots or areas of green browse can be established along logging roads and trails.
- The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
- Den trees should not be harvested.
- Brush piles or other nesting sites are needed.

Urban uses

Suitability: Poorly suited
Management considerations:
- The main limitations are the moderate permeability, the clayey subsoil, low strength, and the steepness of slope.
- The moderate permeability, the shrink-swell potential, and the clayey subsoil are limitations affecting some sanitary facilities and building site development.
- Low strength may be a problem on sites for local roads and streets or when the soil is used as a source of roadfill.
- The steepness of slope is a limitation affecting most urban uses.
- Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 4e

DX—Dumps, landfills

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Varies
Size of areas: 40 to 80 acres
Major land use: Storage and disposal of domestic waste

Composition

Dumps, landfills and similar components: 70 to 90 percent
Contrasting components: 10 to 30 percent

Minor Components

Similar components:
- Scattered areas of Fullerton and Dewey soils
- Udorthents in landscape positions similar to those of the Dumps, landfills

Contrasting components:
- Hamblen and Rockdell soils along drainageways and on narrow flood plains

Typical Profile

A typical profile is not given for this map unit.

Soil Properties and Qualities

The soil materials in this map unit are disturbed and vary greatly. In most areas the original soil material was removed and stockpiled to create a place to dispose of domestic solid waste. The stockpiled soil material was then used to cover the deposited waste material. An onsite investigation is needed to determine the limitations affecting any proposed use.

Use and Management

- The hazard of erosion is the major management concern.
- A well designed erosion-control plan is needed.
- Erosion barriers, diversions, and rocklined or vegetated waterways are important management practices.
- Timely revegetation of inactive areas should be a priority.
- Plant species that can tolerate a wide range of soil conditions grow best.
- Providing a good seedbed, maintaining the proper fertility level, and mulching seeded areas help to establish a protective cover of vegetation.
- Intensive revegetation measures, such as hydroseeding or sodding, may be needed in problem areas.
- A layer of coarse gravel, gabion stone, or riprap helps to control erosion in areas where vegetation cannot be established.

Interpretive Group

Land capability classification: None assigned

DY—Dumps, pulpwood processing waste

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Size of areas: 40 to 70 acres
Major land use: Disposal of organic waste material containing some tree bark and other woody

materials from the paper production process at the nearby paper mill

Composition

Dumps, pulpwood processing waste and similar components: 90 to 100 percent
Contrasting components: 0 to 10 percent

Minor Components

Contrasting components:
- Areas where the water table is at a depth of more than 2 feet
- Udorthents
- Small areas of water

Similar components:
- Bloomingdale soils

Typical Profile

A typical profile is not given for this map unit.

Soil Properties and Qualities

Some of the soils in the two areas of this map unit are hydric. In both places the map unit contains small areas of standing water. Depth to the seasonal high water table varies greatly, depending on rainfall and on the use of the map unit at specific times. The soil material consists mostly of organic material containing fibrous material and tree bark that is waste from the paper production process. An onsite investigation is needed to determine the limitations affecting any proposed use.

Use and Management

- Extensive reclamation and intensive engineering practices are needed for most uses other than dumps.
- This map unit is best suited to wetland wildlife habitat.

Interpretive Group

Land capability classification: None assigned

Ea—Emory silt loam, 0 to 4 percent slopes, occasionally flooded

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Flood plains, narrow drainageways, and upland depressions
Size of areas: 5 to 20 acres
Major land use: Pasture, hay, or row crops

Composition

Emory soil and similar components: 80 to 90 percent
Contrasting components: 10 to 20 percent

Minor Components

Contrasting components:
- Areas of soils that are not flooded and are at the slightly higher elevations
- Isolated areas of Decatur, Collegedale, and Waynesboro soils

Similar components:
- Soils that have lighter colors in the surface layer than the Emory soil
- Moderately well drained soils

Typical Profile

Surface layer:
0 to 8 inches—dark reddish brown, friable silt loam
Subsoil:
8 to 23 inches—dark reddish brown, friable silty clay loam
Buried surface layer:
23 to 32 inches—dark reddish brown, friable silt loam
Buried subsoil:
32 to 38 inches—reddish brown, friable silty clay loam
38 to 46 inches—strong brown, friable silty clay loam
46 to 60 inches—strong brown, firm clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: Between depths of 60 and 72 inches
Flooding: Occasional
Soil reaction: Strongly acid or moderately acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Suited
Management considerations:
- The flooding is the main hazard.
- Some crops may be damaged by the flooding in winter and early spring.
- Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.

Pasture and hay

Suitability: Well suited
Management considerations:
• Few limitations affect the management of pasture and hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
• The potential for openland and woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Trees and brush along streams provide benefits to wildlife as well as erosion control.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Poorly suited
Management considerations:
• The main management concern affecting urban uses is the flooding.
• The flooding is difficult to overcome.
• A suitable alternative site should be selected.

Interpretive Group

Land capability classification: 2w

Eo—Etowah loam, occasionally flooded, overwash

Setting

Physiographic area: Southern Appalachian Ridges and Valleys (in the Conasauga Creek area)
Landscape position: Flood plains and intermittent drainageways
Size of areas: 10 to several hundred acres
Slope range: 0 to 3 percent
Major land use: Pasture, hay, or row crops

Composition

Etowah soil and similar components: 85 to 100 percent
Contrasting components: 0 to 15 percent

Minor Components

Similar components:
• Intermingled areas of Hamblen soils
• Soils that have less clay in the subsoil than the Etowah soil
• Soils that are subject to rare flooding
Contrasting components:
• Small areas of Bloomingdale soils in depressions
• Scattered areas of soils that are not subject to flooding

Typical Profile

Surface layer:
0 to 7 inches—brown, friable loam
7 to 21 inches—strong brown, friable loam
21 to 30 inches—brown, friable loam
Subsoil:
30 to 47 inches—strong brown, friable clay loam
47 to 65 inches—yellowish red, friable clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: Occasional
Soil reaction: Very strongly acid to moderately acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Suited (fig. 6)
Management considerations:
• Few limitations affect cropland.

Figure 6.—An area of Etowah loam, occasionally flooded, overwash, in the foreground. This soil is suited to cultivated crops. Dewey soils are in the background where the barn is located.

• Some crops may be damaged by the flooding in winter and early spring.
• Conservation tillage, crop residue management, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.

Pasture and hay

Suitability: Well suited
Management considerations:
• Few limitations affect the management of pasture and hayland.
• Deferment of grazing when the soil is wet minimizes compaction and damage to the stand and helps to prevent excessive runoff.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
• The potential for openland wildlife habitat is fair, and the potential for woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.

- Buffer zones along streams provide benefits to wildlife as well as erosion control.
- Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
- Food plots or areas of green browse can be established along logging roads and trails.
- The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
- Den trees should not be harvested.
- Brush piles or other nesting sites are needed.

Urban uses

Suitability: Poorly suited
Management considerations:
- The main management concern affecting urban uses is the flooding.
- The flooding is difficult to overcome.
- A suitable alternative site should be selected.

Interpretive Group

Land capability classification: 2w

EtB—Etowah loam, 2 to 5 percent slopes

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Stream terraces and footslopes
Size of areas: 5 to 440 acres
Major land use: Hay, pasture, or cropland

Composition

Etowah soil and similar components: 85 to 95 percent
Contrasting components: 5 to 15 percent

Minor Components

Similar components:
- Scattered areas of Dewey and Waynesboro soils
- A few areas of moderately well drained soils
- Intermingled areas of Shady soils

Contrasting components:
- Narrow strips of Hamblen and Pettyjon soils along drainageways and in depressions

Typical Profile

Surface layer:
0 to 10 inches—brown, friable loam
Subsoil:
10 to 57 inches—yellowish red, friable clay loam
57 to 70 inches—yellowish red, friable clay loam with strong brown mottles

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid to moderately acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Well suited
Management considerations:
- Few limitations affect cropland.
- Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
- Terraces, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and hay

Suitability: Well suited
Management considerations:
- Few limitations affect the management of pasture and hayland.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Well suited
Management considerations:
- Few limitations affect forest management.
- Plant competition from undesirable species may be a problem when establishing a new forest crop.
- Proper site preparation helps to control the plant competition that may occur immediately after planting.
- Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
- The potential for openland and woodland wildlife habitat is good.

• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Well suited
Management considerations:
• Few limitations affect urban uses.
• The moderate permeability in the subsoil is a limitation affecting some sanitary facilities and building site development.
• Low strength may be a problem on sites for local roads and streets or when the soil is used as a source of roadfill.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 2e

EtC—Etowah loam, 5 to 12 percent slopes

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Stream terraces
Size of areas: 5 to 35 acres
Major land use: Hay, pasture, or cropland

Composition

Etowah soil and similar components: 85 to 95 percent
Contrasting components: 5 to 15 percent

Minor Components

Similar components:
• Scattered areas of Dewey and Waynesboro soils
• Shady soils in landscape positions similar to those of the Etowah soil
• Moderately well drained soils
Contrasting components:
• Narrow strips of Hamblen and Pettyjon soils along drainageways and in depressions

Typical Profile

Surface layer:
0 to 10 inches—brown, friable loam
Subsoil:
10 to 57 inches—yellowish red, friable clay loam
57 to 70 inches—yellowish red, friable clay loam with strong brown mottles

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid to moderately acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Suited
Management considerations:
• The main management concern is the hazard of erosion.
• Erosion is a moderate hazard if a conventional tillage system is used.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• A crop rotation that includes grasses and legumes helps to control erosion.
• Terraces, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and hay

Suitability: Well suited
Management considerations:
• Few limitations affect the management of pasture and hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Well suited
Management considerations:
- Few limitations affect forest management.
- Plant competition from undesirable species may be a problem when establishing a new forest crop.
- Proper site preparation helps to control the plant competition that may occur immediately after planting.
- Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
- The potential for openland and woodland wildlife habitat is good.
- Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
- Field borders and filter strips provide good wildlife habitat.
- Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
- Buffer zones along streams provide benefits to wildlife as well as erosion control.
- Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
- Food plots or areas of green browse can be established along logging roads and trails.
- The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
- Den trees should not be harvested.
- Brush piles or other nesting sites are needed.

Urban uses

Suitability: Suited
Management considerations:
- The main limitations are the moderate permeability, low strength, and the steepness of slope.
- The moderate permeability and the clayey subsoil are limitations affecting some sanitary facilities and building site development.
- Low strength may be a problem on sites for local roads and streets or when the soil is used as a source of roadfill.
- The steepness of slope is a limitation affecting most urban uses.
- Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 3e

FcB2—Fullerton clay loam, 2 to 5 percent slopes, eroded

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Smooth ridge crests and the upper side slopes
Size of areas: 5 to 25 acres
Major land use: Hay, pasture, or cropland

Composition

Fullerton soil and similar components: 80 to 95 percent
Contrasting components: 5 to 20 percent

Minor Components

Similar components:
- Dewey, Etowah, and Waynesboro soils in landscape positions similar to those of the Fullerton soil
- Minvale soils on side slopes and footslopes

Contrasting components:
- Intermingled areas of Bodine soils in landscape positions similar to those of the Fullerton soil

Typical Profile

Surface layer:
0 to 4 inches—dark brown, friable clay loam
Subsoil:
4 to 18 inches—yellowish red, friable gravelly clay
18 to 60 inches—yellowish red, friable gravelly clay with very pale brown mottles

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Well suited
Management considerations:
- Few limitations affect cropland.

• This soil is somewhat difficult to till.
• The moisture range for cultivation has been narrowed because the surface layer consists partly of subsoil material.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and improve soil tilth.
• Terraces, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and hay

Suitability: Well suited
Management considerations:
• Few limitations affect the management of pasture and hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
• The potential for openland and woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Suited
Management considerations:
• The main limitations are the moderate permeability, the clayey subsoil, low strength, and the shrink-swell potential.
• The moderate permeability and the clayey subsoil are limitations affecting some sanitary facilities and building site development.
• Low strength may be a problem on sites for local roads and streets or when the soil is used as a source of roadfill.
• The shrink-swell potential in the subsoil may be a problem when footers and basements are constructed.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 2e

FgC2—Fullerton gravelly silt loam, 5 to 12 percent slopes, eroded

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Narrow ridge crests, shoulder slopes, and the upper side slopes
Size of areas: 5 to several hundred acres
Major land use: Pasture, hay, or cropland

Composition

Fullerton soil and similar components: 85 to 95 percent
Contrasting components: 5 to 15 percent

Minor Components

Similar components:
• Intermingled areas of Dewey soils
• Minvale soils on footslopes
• Scattered areas of Collegedale soils
Contrasting components:
• Scattered areas of Bodine soils

Typical Profile

Surface layer:
0 to 5 inches—brown, friable gravelly silt loam

Subsurface layer:
5 to 11 inches—strong brown, friable gravelly silt loam
Subsoil:
11 to 19 inches—strong brown, friable gravelly silty clay loam
19 to 33 inches—strong brown, friable gravelly clay with yellowish red mottles
33 to 44 inches—yellowish red, friable very gravelly clay with strong brown mottles
44 to 63 inches—yellowish red, firm extremely gravelly clay with brownish yellow mottles

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Suited
Management considerations:
• Few limitations affect cropland.
• Erosion is a moderate hazard if a conventional tillage system is used.
• The gravelly surface layer restricts tillage in some areas.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• A crop rotation that includes grasses and legumes helps to control erosion.
• Terraces, diversions, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and hay

Suitability: Well suited
Management considerations:
• Few limitations affect the management of pasture.
• The steepness of slope may be a limitation affecting hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
• The potential for openland and woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Suited
Management considerations:
• The main limitations are the moderate permeability, the clayey subsoil, low strength, the shrink-swell potential, and the steepness of slope.
• The moderate permeability and the clayey subsoil are limitations affecting some sanitary facilities and building site development.
• Low strength may be a problem on sites for local roads and streets or when the soil is used as a source of roadfill.

• The shrink-swell potential in the subsoil may be a problem when footers and basements are constructed.
• The steepness of slope is a limitation affecting some urban uses.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 3e

FgD2—Fullerton gravelly silt loam, 12 to 25 percent slopes, eroded

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Narrow ridge crests, shoulder slopes, backslopes, and side slopes
Size of areas: 5 to several hundred acres
Major land use: Pasture, hay, or woodland

Composition

Fullerton soil and similar components: 85 to 90 percent
Contrasting components: 10 to 15 percent

Minor Components

Similar components:
• Intermingled areas of Dewey soils
• Minvale soils on footslopes
• Scattered areas of Collegedale soils
Contrasting components:
• Scattered areas of Bodine soils
• Isolated areas of Rock outcrop
• Small areas of soils that have limestone bedrock at a depth of 20 to 40 inches
• Rockdell soils in narrow drainageways and on flood plains

Typical Profile

Surface layer:
0 to 5 inches—brown, friable gravelly silt loam
Subsurface layer:
5 to 11 inches—strong brown, friable gravelly silt loam
Subsoil:
11 to 19 inches—strong brown, friable gravelly silty clay loam
19 to 33 inches—strong brown, friable gravelly clay with yellowish red mottles
33 to 44 inches—yellowish red, friable very gravelly clay with strong brown mottles
44 to 63 inches—yellowish red, firm extremely gravelly clay with brownish yellow mottles

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Poorly suited
Management considerations:
• The main management concern in areas used for cultivated crops is the hazard of erosion.
• Erosion is a severe hazard if a conventional tillage system is used.
• The gravelly surface layer restricts tillage in some areas.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• A long-term crop rotation that includes grasses and legumes helps to control erosion.
• Diversions, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and hay

Suitability: Suited
Management considerations:
• The main limitation is the steepness of slope.
• The steepness of slope increases the difficulty of properly managing pastures and limits the use of this soil as hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, plant competition, and seedling mortality.
• The hazard of erosion can be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by

spreading gravel on the road surface and by installing water breaks and culverts.
• Temporary roads that are no longer used can be closed and protected by seeding and by installing water breaks.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation only when large, specialized equipment is used.
• Slopes generally are broken up enough or are short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• When establishing a new forest crop, the seedling mortality rate may be high because of the moderate available water capacity and the gravelly surface layer.
• Aspect should be carefully considered when planting sites are selected for seedlings.
• Reinforcement plantings can be made until the desired stand is attained.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Suited
Management considerations:
• The potential for openland wildlife habitat is fair, and the potential for woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Suited
Management considerations:
• The main limitations are the moderate permeability, the clayey subsoil, low strength, the shrink-swell potential, and the steepness of slope.
• The moderate permeability and the clayey subsoil are limitations affecting some sanitary facilities and building site development.
• Low strength may be a problem on sites for local roads and streets or when the soil is used as a source of roadfill.
• The shrink-swell potential in the subsoil may be a problem when footers and basements are constructed.
• The steepness of slope is a limitation affecting most urban uses.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 4e

FgE3—Fullerton gravelly silt loam, 5 to 35 percent slopes, gullied

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Narrow ridge crests, shoulder slopes, backslopes, and side slopes
Size of areas: 5 to 40 acres
Major land use: Pasture, hay, or woodland

Composition

Fullerton soil and similar components: 80 to 90 percent
Contrasting components: 10 to 20 percent

Minor Components

Similar components:
• Intermingled areas of Dewey soils
• Minvale soils on footslopes
• Scattered areas of Collegedale soils
Contrasting components:
• Scattered areas of Bodine soils
• Isolated areas of Rock outcrop
• Rockdell soils in narrow drainageways and on flood plains

Typical Profile

Surface layer:
0 to 5 inches—brown, friable gravelly silt loam

Subsurface layer:
5 to 11 inches—strong brown, friable gravelly silt loam
Subsoil:
11 to 19 inches—strong brown, friable gravelly silty clay loam
19 to 33 inches—strong brown, friable gravelly clay with yellowish red mottles
33 to 44 inches—yellowish red, friable very gravelly clay with strong brown mottles
44 to 63 inches—yellowish red, firm extremely gravelly clay with brownish yellow mottles

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• The main management concerns in areas used for cultivated crops are the hazard of erosion and gullies.
• Intensive erosion-control measures are needed if this soil is used for cultivated crops.

Pasture and hay

Suitability: Poorly suited
Management considerations:
• The main limitations are the steepness of slope and the gullies.
• The gullied areas and the steepness of slope increase the difficulty of properly managing pastures and limit the use of this soil as hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, plant competition, and seedling mortality.
• The hazard of erosion can be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water breaks and culverts.
• Temporary roads that are no longer used can be closed and protected by seeding and by installing water breaks.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation only when large, specialized equipment is used.
• Slopes generally are broken up enough or are short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• When establishing a new forest crop, the seedling mortality rate may be high because of the moderate available water capacity and the gravelly surface layer.
• Aspect should be carefully considered when planting sites are selected for seedlings.
• Reinforcement plantings can be made until the desired stand is attained.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Suited
Management considerations:
• The potential for openland wildlife habitat is fair, and the potential for woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.

• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Poorly suited
Management considerations:
• The main limitations are the moderate permeability, the clayey subsoil, low strength, the shrink-swell potential, and the steepness of slope.
• The moderate permeability and the clayey subsoil are limitations affecting some sanitary facilities and building site development.
• Low strength may be a problem on sites for local roads and streets or when the soil is used as a source of roadfill.
• The shrink-swell potential in the subsoil may be a problem when footers and basements are constructed.
• The steepness of slope is a limitation affecting most urban uses.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 6e

FgF2—Fullerton gravelly silt loam, 25 to 60 percent slopes, eroded

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Side slopes, backslopes, and shoulder slopes
Size of areas: 5 to 390 acres
Major land use: Woodland and pasture

Composition

Fullerton soil and similar components: 80 to 95 percent
Contrasting components: 5 to 20 percent

Minor Components

Similar components:
• Intermingled areas of Dewey and Etowah soils
• Minvale soils on footslopes
• Scattered areas of Collegedale soils
Contrasting components:
• Scattered areas of Bodine soils
• Isolated areas of Rock outcrop
• Rockdell soils in drainageways and on narrow flood plains

Typical Profile

Surface layer:
0 to 5 inches—brown, friable gravelly silt loam
Subsurface layer:
5 to 11 inches—strong brown, friable gravelly silt loam
Subsoil:
11 to 19 inches—strong brown, friable gravelly silty clay loam
19 to 33 inches—strong brown, friable gravelly clay with yellowish red mottles
33 to 44 inches—yellowish red, friable very gravelly clay with strong brown mottles
44 to 63 inches—yellowish red, firm extremely gravelly clay with brownish yellow mottles

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• The main management concern in areas used for cultivated crops is the hazard of erosion.
• The steepness of slope prevents the use of most tillage equipment.

Pasture and hay

Suitability: Unsuited
Management considerations:
• The main limitation is the steepness of slope.
• The steepness of slope increases the difficulty of properly managing pastures and limits the use of this soil as hayland.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, plant competition, and seedling mortality.
• The hazard of erosion can be reduced by locating roads and trails as closely on the contour as possible.

• Permanent access roads can be protected by spreading gravel on the road surface and by installing water breaks and culverts.
• Temporary roads that are no longer used can be closed and protected by seeding and by installing water breaks.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation only when large, specialized equipment is used.
• Slopes generally are broken up enough or are short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• When establishing a new forest crop, the seedling mortality rate may be high because of the moderate available water capacity and the gravelly surface layer.
• Aspect should be carefully considered when planting sites are selected for seedlings.
• Reinforcement plantings can be made until the desired stand is attained.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
• The potential for woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Poorly suited
Management considerations:
• The main limitations are the moderate permeability, the clayey subsoil, low strength, the shrink-swell potential, and the steepness of slope.
• A suitable alternative site should be selected.

Interpretive Group

Land capability classification: 7e

FRC—Fullerton-Urban land complex, 2 to 12 percent slopes

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Narrow ridge crests, shoulder slopes, and the upper side slopes
Size of areas: 20 to several hundred acres
Major land use: Urban areas—homesites, lawns, industrial parks, schools, roads, parking lots, and streets

Composition

Fullerton soil and similar components: 55 to 70 percent
Urban land and similar components: 30 to 45 percent
Contrasting components: 5 to 15 percent

Minor Components

Similar components:
• Intermingled areas of Dewey soils
• Minvale soils on footslopes
• Scattered areas of Collegedale soils
Contrasting components:
• Isolated areas of Bodine soils

Typical Profile

Fullerton

Surface layer:
0 to 5 inches—brown, friable gravelly silt loam
Subsurface layer:
5 to 11 inches—strong brown, friable gravelly silt loam
Subsoil:
11 to 19 inches—strong brown, friable gravelly silty clay loam
19 to 33 inches—strong brown, friable gravelly clay with yellowish red mottles
33 to 44 inches—yellowish red, friable very gravelly clay with strong brown mottles
44 to 63 inches—yellowish red, firm extremely gravelly clay with brownish yellow mottles

Urban land

The Urban land consists of areas where the surface is covered by roads, streets, parking lots, commercial

buildings, houses, and other types of impervious ground cover. In places the natural drainage pattern has been altered by a system of ditches and storm drains. The underlying soil material is not observable. A typical profile of Urban land is not given.

Soil Properties and Qualities

Fullerton

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Moderate

Use and Management

Urban uses

Suitability: Suited
Management considerations:
- The hazard of erosion is a major management concern during construction.
- A well designed erosion-control plan is needed.
- Erosion barriers, diversions, and rocklined or vegetated waterways are important management practices.
- Timely revegetation of bare areas should be a priority.
- Plant species that can tolerate a wide range of soil conditions grow best.
- Providing a good seedbed, maintaining the proper fertility level, and mulching seeded areas help to establish a protective cover of vegetation.
- Intensive revegetation measures, such as hydroseeding and sodding, may be needed in problem areas.
- A layer of concrete, asphalt, coarse gravel, gabion stone, or riprap helps to control erosion in areas where vegetation cannot be established.
- Differential settling is a management concern in areas of fill material.
- The load-bearing strength, the shrink-swell potential, surface runoff, and storm drainage management are concerns affecting urban development.
- The steepness of slope and the shrink-swell potential in the subsoil are the major limitations on sites for dwellings.
- Designing buildings and structures so that they conform to the natural slope of the land reduces the need for land shaping.
- Footers and basement walls of dwellings may need additional reinforcement.
- The steepness of slope and the moderate permeability in the subsoil are moderate limitations on sites for septic tank absorption fields.
- Designing septic tank systems so that they conform to the existing slope and installing specially designed systems help to overcome the limitations.
- The stoniness of the Fullerton soil is a limitation in areas used for lawns or golf fairways and when the soil is landscaped.
- Providing a good seedbed, maintaining the proper fertility level, and mulching seeded areas help to establish ground cover.
- The steepness of slope and the shrink-swell potential are moderate limitations on sites for small commercial buildings.
- Land shaping may be needed to overcome the slope on sites for small commercial buildings.
- Footers and concrete floors of small commercial buildings may need additional reinforcement.
- Low strength, the shrink-swell potential, and the steepness of slope are moderate limitations on sites for local roads and streets.
- Adding gravel or other suitable subgrade material helps to prevent the road damage caused by low strength and by shrinking and swelling.
- Designing roads so that they follow the natural contour and land shaping help to overcome the slope.
- Onsite investigation is needed to determine the limitations affecting any proposed use.

Interpretive Group

Land capability classification: Fullerton—3e; Urban land—none assigned

FRD—Fullerton-Urban land complex, 12 to 25 percent slopes

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Narrow ridge crests, shoulder slopes, backslopes, and the upper side slopes
Size of areas: 10 to several hundred acres
Major land use: Urban areas—homesites, lawns, industrial parks, schools, roads, parking lots, and streets

Composition

Fullerton soil and similar components: 55 to 70 percent
Urban land and similar components: 30 to 45 percent

Contrasting components: 5 to 15 percent

Minor Components

Similar components:
- Intermingled areas of Dewey soils
- Minvale soils on footslopes
- Scattered areas of Collegedale soils

Contrasting components:
- Isolated areas of Bodine soils

Typical Profile

Fullerton

Surface layer:
0 to 5 inches—brown, friable gravelly silt loam
Subsurface layer:
5 to 11 inches—strong brown, friable gravelly silt loam
Subsoil:
11 to 19 inches—strong brown, friable gravelly silty clay loam
19 to 33 inches—strong brown, friable gravelly clay with yellowish red mottles
33 to 44 inches—yellowish red, friable very gravelly clay with strong brown mottles
44 to 63 inches—yellowish red, firm extremely gravelly clay with brownish yellow mottles

Urban land

The Urban land mostly consists of areas where the surface is covered by roads, streets, parking lots, commercial buildings, houses, and other types of impervious ground cover. In places the natural drainage pattern has been altered by a system of ditches and storm drains. The underlying soil material is not observable. A typical profile of Urban land is not given.

Soil Properties and Qualities

Fullerton

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Moderate

Use and Management

Urban uses

Suitability: Suited

Management considerations:
- The hazard of erosion is a major management concern during construction.
- A well designed erosion-control plan is needed.
- Erosion barriers, diversions, and rocklined or vegetated waterways are important management practices.
- Timely revegetation of bare areas should be a priority.
- Plant species that can tolerate a wide range of soil conditions grow best.
- Providing a good seedbed, maintaining the proper fertility level, and mulching seeded areas help to establish a protective cover of vegetation.
- Intensive revegetation measures, such as hydroseeding and sodding, may be needed in problem areas.
- A layer of concrete, asphalt, coarse gravel, gabion stone, or riprap helps to control erosion in areas where vegetation cannot be established.
- Differential settling is a management concern in areas of fill material.
- The load-bearing strength, the shrink-swell potential, surface runoff, and storm drainage management are additional concerns affecting urban development.
- The steepness of slope and the shrink-swell potential in the subsoil are the major limitations on sites for dwellings.
- Designing buildings and structures so that they conform to the natural slope of the land reduces the need for land shaping.
- Footers and basement walls of dwellings may need additional reinforcement.
- The steepness of slope and the moderate permeability in the subsoil are moderate limitations on sites for septic tank absorption fields.
- Designing septic tank systems so that they conform to the existing slope and installing specially designed systems help to overcome the slope and the restricted permeability.
- The stoniness of the Fullerton soil is a severe limitation in areas used for lawns or golf fairways and when the soil is landscaped.
- Providing a good seedbed, maintaining the proper fertility level, and mulching seeded areas help to establish ground cover.
- The steepness of slope is a severe limitation and the shrink-swell potential is a moderate limitation on sites for small commercial buildings.
- Land shaping helps to overcome the slope on sites for small commercial buildings.
- Footers and concrete floors of small commercial buildings may need additional reinforcement.

• Low strength, the shrink-swell potential, and the steepness of slope are moderate limitations on sites for local roads and streets.
• Adding gravel or other suitable subgrade material helps to prevent the road damage caused by low strength and by shrinking and swelling.
• Designing roads so that they follow the natural contour and land shaping help to overcome the slope.
• Onsite investigation is needed to determine the limitations affecting any proposed use.

Interpretive Group

Land capability classification: Fullerton—4e; Urban land—none assigned

Ha—Hamblen silt loam, occasionally flooded

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Flood plains and drainageways
Size of areas: 5 to several hundred acres
Slope range: 0 to 3 percent
Major land use: Pasture, hay, or cropland

Composition

Hamblen soil and similar components: 85 to 95 percent
Contrasting components: 5 to 15 percent

Minor Components

Similar components:
• Well drained soils on natural levees and at the slightly higher elevations
• Etowah soils on footslopes and stream terraces that are not subject to flooding
Contrasting components:
• Small areas of Bloomingdale soils in depressions and old meander channels

Typical Profile

Surface layer:
0 to 7 inches—brown, very friable silt loam
Subsoil:
7 to 14 inches—yellowish brown, friable silt loam
14 to 21 inches—light olive brown, friable silt loam with grayish brown mottles
21 to 30 inches—yellowish brown, friable silt loam with grayish brown mottles
Substratum:
30 to 37 inches—yellowish brown, friable loam with olive gray and yellowish brown mottles
37 to 52 inches—yellowish brown, friable loam with strong brown and grayish brown mottles
52 to 60 inches—gray, firm very gravelly clay with strong brown mottles

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: Between depths of 21 and 36 inches
Flooding: Occasional
Soil reaction: Strongly acid to neutral
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Suited
Management considerations:
• Few limitations affect cropland.
• The wetness delays planting and harvesting in some years.
• Some crops may be damaged by the flooding in winter and early spring.
• Conservation tillage, crop residue management, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.

Pasture and hay

Suitability: Well suited
Management considerations:
• Few limitations affect the management of pasture and hayland.
• Deferment of grazing when the soil is wet minimizes compaction and damage to the stand and helps to prevent excessive runoff.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• When establishing a new forest crop, the seedling mortality rate may be high because of the high water table.
• Reinforcement plantings can be made until the desired stand is attained.

• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
• The potential for openland and woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Poorly suited
Management considerations:
• The main limitations affecting urban uses are the flooding and the wetness.
• The flooding and the wetness are difficult to overcome.
• A suitable alternative site should be selected.

Interpretive Group

Land capability classification: 2w

HrC—Harmiller loam, 5 to 12 percent slopes

Setting

Physiographic area: Blue Ridge
Landscape position: Narrow ridge crests above the flood plain along Bullet Creek
Size of areas: 10 to 330 acres
Major land use: Woodland

Composition

Harmiller soil and similar components: 85 to 95 percent
Contrasting components: 5 to 15 percent

Minor Components

Similar components:
• Intermingled areas of deep soils and soils that have more clay in the subsoil than the Harmiller soil
Contrasting components:
• Keener soils on footslopes and along saddles between narrow, low ridges
• Cataska soils on ridges

Typical Profile

Surface layer:
0 to 5 inches—brown, friable loam
Subsoil:
5 to 14 inches—yellowish brown, friable clay loam
14 to 23 inches—brownish yellow, friable clay loam with strong brown and light gray mottles
Bedrock:
23 to 30 inches—soft, sandy, fractured shale

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Extremely acid to moderately acid
Depth to soft bedrock: 20 to 40 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• The main management concerns in areas used for cultivated crops are the hazard of erosion, the depth to bedrock, and the low available water capacity.

Pasture and hay

Suitability: Suited
Management considerations:
• The main management concern is the low available water capacity.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.

• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• Windthrow is a hazard in some areas because of the moderately deep root zone.
• The windthrow hazard can be reduced by applying a carefully regulated thinning and salvage program.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
• The potential for openland wildlife habitat is good, and the potential for woodland wildlife habitat is fair.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Poorly suited
Management considerations:
• The main limitations affecting urban uses are the moderate permeability, low strength, and the depth to bedrock.
• Low strength may be a problem on sites for local roads and streets or when the soil is used as a source of roadfill.
• The depth to bedrock is a limitation affecting some building site development.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 4e

KeC—Keener-Lostcove complex, 3 to 12 percent slopes, very stony

Setting

Physiographic area: Blue Ridge
Landscape position: Lower side slopes and footslopes
Size of areas: 10 to 65 acres
Major land use: Woodland and pasture

Composition

Keener soil and similar components: 40 to 70 percent
Lostcove soil and similar components: 15 to 30 percent
Contrasting components: 5 to 20 percent

Minor Components

Similar components:
• Soils that have more clay in the subsoil than the Keener and Lostcove soils
Contrasting components:
• Scattered areas of Cataska soils
• Areas where the slopes are less than 3 percent or more than 12 percent
• Intermingled areas of Waynesboro and Etowah soils

Typical Profile

Keener

Surface layer:
0 to 3 inches—brown, very friable gravelly sandy loam
Subsoil:
3 to 15 inches—brownish yellow, friable gravelly sandy clay loam
15 to 36 inches—yellowish brown, friable gravelly clay loam
36 to 60 inches—strong brown, friable gravelly sandy clay loam with yellowish red and brownish yellow mottles

Lostcove

Surface layer:
0 to 1 inch—moderately decomposed hardwood leaf litter and pine needles
1 to 5 inches—yellowish brown, very friable gravelly loam

Subsoil:
5 to 19 inches—yellowish brown, friable very cobbly clay loam
19 to 50 inches—yellowish brown, friable very cobbly clay loam with strong brown mottles
50 to 76 inches—yellowish brown, friable very cobbly clay with yellowish red and brownish yellow mottles

Soil Properties and Qualities

Keener

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Stoniness: 0.1 to 3 percent of the surface covered by stones
Flooding: None
Soil reaction: Very strongly acid to moderately acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Lostcove

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Low
Seasonal high water table: At a depth of more than 72 inches
Stoniness: 0.1 to 3 percent of the surface covered by stones
Flooding: None
Soil reaction: Extremely acid to strongly acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Poorly suited
Management considerations:
• The main management concerns in areas used for cultivated crops are the hazard of erosion and the large stones.
• Conservation tillage, crop residue management, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.

Pasture and hay

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion and the large stones.
• The large stones increase the difficulty of properly managing pastures and limit the use of these soils as hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Well suited
Management considerations:
• The main management concern is plant competition.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cutting or by applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
• The potential for openland and woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Suited
Management considerations:
• The main limitations affecting urban uses are the moderate permeability and the large stones.
• The moderate permeability in the subsoil is a limitation affecting some sanitary facilities and building site development.

• The gravel in the surface layer and the pebbles, cobbles, and stones throughout the soil may cause problems in areas used for lawns or as sites for sanitary facilities or when the soils are landscaped or excavated.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: Keener—3e; Lostcove—7s

KeF—Keener-Lostcove complex, 35 to 50 percent slopes, very stony

Setting

Physiographic area: Blue Ridge
Landscape position: Lower side slopes and footslopes
Size of areas: 10 to several hundred acres
Major land use: Woodland

Composition

Keener soil and similar components: 40 to 70 percent
Lostcove soil and similar components: 15 to 30 percent
Contrasting components: 5 to 25 percent

Minor Components

Similar components:
• Intermingled areas of soils that have more clay in the subsoil than the Keener and Lostcove soils
Contrasting components:
• Scattered areas of Cataska soils
• Isolated areas of Rock outcrop
• Areas that have slopes of less than 35 percent

Typical Profile

Keener

Surface layer:
0 to 3 inches—brown, very friable gravelly sandy loam
Subsoil:
3 to 15 inches—brownish yellow, friable gravelly sandy clay loam
15 to 36 inches—yellowish brown, friable gravelly clay loam
36 to 60 inches—strong brown, friable gravelly sandy clay loam with yellowish red and brownish yellow mottles

Lostcove

Surface layer:
0 to 1 inch—moderately decomposed hardwood leaf litter and pine needles
1 to 5 inches—yellowish brown, very friable gravelly loam
Subsoil:
5 to 19 inches—yellowish brown, friable very cobbly clay loam
19 to 50 inches—yellowish brown, friable very cobbly clay loam with strong brown mottles
50 to 76 inches—yellowish brown, friable very cobbly clay with yellowish red and brownish yellow mottles

Soil Properties and Qualities

Keener

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Stoniness: 0.1 to 3 percent of the surface covered by stones
Flooding: None
Soil reaction: Very strongly acid to moderately acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Lostcove

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Low
Seasonal high water table: At a depth of more than 72 inches
Stoniness: 0.1 to 3 percent of the surface covered by stones
Flooding: None
Soil reaction: Extremely acid to strongly acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• The main management concerns in areas used for cultivated crops are the hazard of erosion, the steepness of slope, and the large stones.

Pasture and hay

Suitability: Unsuited
Management considerations:
• The main management concerns are the hazard of erosion, the steepness of slope, and the large stones.
• The steepness of slope and the large stones

increase the difficulty of properly managing pastures and limit the use of these soils as hayland.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, plant competition, and the hazard of windthrow.
• The hazard of erosion can be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water breaks and culverts.
• Temporary roads that are no longer used can be closed and protected by seeding and by installing water breaks.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation only when large, specialized equipment is used.
• Slopes generally are broken up enough or are short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• Windthrow is a hazard in some areas because of the steepness of slope.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Suited
Management considerations:
• The potential for woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Unsuited
Management considerations:
• The main limitations affecting urban uses are the moderate permeability, the steepness of slope, and the large stones.
• Proper design, installation, and site preparation help to overcome some of the limitations.
• A suitable alternative site should be selected.

Interpretive Group

Land capability classification: Keener—7e; Lostcove—7s

LoD—Lostcove gravelly loam, 12 to 20 percent slopes, stony

Setting

Physiographic area: Blue Ridge
Landscape position: Lower side slopes and footslopes
Size of areas: 10 to several hundred acres
Major land use: Woodland

Composition

Lostcove soil and similar components: 85 to 95 percent
Contrasting components: 5 to 15 percent

Minor Components

Similar components:
• Intermingled areas of Keener soils
• Soils that have less clay in the subsoil than the Lostcove soil
Contrasting components:
• Soils that have slopes of more than 20 percent
• Scattered areas of Cataska, Harmiller, and McCamy soils

Typical Profile

Surface layer:
0 to 1 inch—moderately decomposed hardwood leaf litter and pine needles
1 to 5 inches—yellowish brown, very friable gravelly loam
Subsoil:
5 to 19 inches—yellowish brown, friable very cobbly clay loam
19 to 50 inches—yellowish brown, friable very cobbly clay loam with strong brown mottles
50 to 76 inches—yellowish brown, friable very cobbly clay with yellowish red and brownish yellow mottles

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Low
Seasonal high water table: At a depth of more than 72 inches
Stoniness: Up to 0.1 percent of the surface covered by stones
Flooding: None
Soil reaction: Extremely acid to strongly acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• The main management concerns in areas used for cultivated crops are the hazard of erosion, the low available water capacity, the large stones, and the steepness of slope.

Pasture and hay

Suitability: Poorly suited
Management considerations:
• The main limitations are the low available water capacity, the steepness of slope, and the large stones.
• The steepness of slope and the large stones increase the difficulty of properly managing pastures and limit the use of this soil as hayland.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, and plant competition.
• The hazard of erosion can be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water breaks and culverts.
• Temporary roads that are no longer used can be closed and protected by seeding and by installing water breaks.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation only when large, specialized equipment is used.
• Slopes generally are short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Suited
Management considerations:
• The potential for openland wildlife habitat is fair, and the potential for woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Suited
Management considerations:
• The main limitations affecting urban uses are the moderate permeability, the large stones, and the steepness of slope.
• The moderate permeability in the subsoil is a limitation affecting some sanitary facilities.
• The steepness of slope is a limitation affecting some urban uses.
• The cobbles and stones throughout the soil may cause problems in areas used for lawns or as sites for sanitary facilities or when the soil is landscaped or excavated.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 7s

LoE—Lostcove gravelly loam, 20 to 35 percent slopes, very stony

Setting

Physiographic area: Blue Ridge
Landscape position: Lower side slopes and footslopes
Size of areas: 10 to several hundred acres
Major land use: Woodland

Composition

Lostcove soil and similar components: 85 to 90 percent
Contrasting components: 10 to 15 percent

Minor Components

Similar components:
• Soils that have slopes of less than 20 percent or more than 35 percent
• Keener soils
• Soils that have less clay in the subsoil than the Lostcove soil
Contrasting components:
• Harmiller soils
• Scattered areas of Cataska soils

Typical Profile

Surface layer:
0 to 1 inch—moderately decomposed hardwood leaf litter and pine needles
1 to 5 inches—yellowish brown, very friable gravelly loam
Subsoil:
5 to 19 inches—yellowish brown, friable very cobbly clay loam
19 to 50 inches—yellowish brown, friable very cobbly clay loam with strong brown mottles
50 to 76 inches—yellowish brown, friable very cobbly clay with yellowish red and brownish yellow mottles

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Low
Seasonal high water table: At a depth of more than 72 inches
Stoniness: 0.1 to 3 percent of the surface covered by stones
Flooding: None
Soil reaction: Extremely acid to strongly acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• The main management concerns in areas used for cultivated crops are the hazard of erosion, the low available water capacity, the steepness of slope, and the large stones.

Pasture and hay

Suitability: Unsuited
Management considerations:
• The main limitations are the low available water capacity, the large stones, and the steepness of slope.
• The steepness of slope and the large stones increase the difficulty of properly managing pastures and limit the use of this soil as hayland.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, and plant competition.
• The hazard of erosion can be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water breaks and culverts.
• Temporary roads that are no longer used can be closed and protected by seeding and by installing water breaks.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation only when large, specialized equipment is used.
• Slopes generally are short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Suited
Management considerations:
• The potential for woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Poorly suited
Management considerations:
• The main limitations affecting urban uses are the moderate permeability, the steepness of slope, and the large stones.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 7s

McD—McCamy loam, 12 to 25 percent slopes, rocky

Setting

Physiographic area: Blue Ridge
Landscape position: Side slopes
Size of areas: 10 to 250 acres
Major land use: Woodland

Composition

McCamy soil and similar components: 85 to 95 percent
Rock outcrop: 0.1 to 2 percent
Contrasting components: 5 to 15 percent

Minor Components

Similar components:
• Soils that have bedrock at a depth of more than 40 inches
• Scattered areas of soils that have redder colors than the McCamy soil
Contrasting components:
• Unicoi soils
• Soils that have more rock fragments throughout than the McCamy soil

Typical Profile

Surface layer:
0 to 3 inches—moderately and highly decomposed organic material
3 to 5 inches—brown, very friable loam
Subsoil:
5 to 11 inches—yellowish brown, very friable loam
11 to 24 inches—yellowish brown, friable clay loam
Bedrock:
24 to 31 inches—soft, brownish metasandstone
31 to 34 inches—hard metasandstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Extremely acid to strongly acid
Depth to hard bedrock: 20 to 40 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• The main management concerns in areas used for cultivated crops are the hazard of erosion, the shallow root zone, the depth to bedrock, and the steepness of slope.

Pasture and hay

Suitability: Poorly suited
Management considerations:
• The main limitations are the depth to bedrock and the steepness of slope.
• The steepness of slope increases the difficulty of properly managing pastures and limits the use of this soil as hayland.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, the hazard of windthrow, seedling mortality, and plant competition.
• The hazard of erosion can be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water breaks and culverts.
• Temporary roads that are no longer used can be

closed and protected by seeding and by installing water breaks.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation only when large, specialized equipment is used.
• Slopes generally are broken up enough or are short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• Windthrow is a hazard in some areas because of the moderately deep root zone.
• The windthrow hazard can be reduced by applying a carefully regulated thinning and salvage program.
• When establishing a new forest crop, the seedling mortality rate may be high because of the gravelly surface layer.
• Aspect and the content of gravel in the surface layer should be carefully considered when planting sites are selected for seedlings.
• Reinforcement plantings can be made until the desired stand is attained.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Suited
Management considerations:
• The potential for openland wildlife habitat is fair, and the potential for woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Unsuited
Management considerations:
• The main limitations affecting urban uses are the depth to bedrock and the steepness of slope.
• A suitable alternative site should be selected.

Interpretive Group

Land capability classification: 6e

MfF—Minvale and Fullerton soils, 25 to 45 percent slopes

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Lower side slopes, backslopes, fans, and footslopes
Size of areas: 10 to 133 acres
Major land use: Pasture or woodland

Composition

Minvale soil and similar components: 35 to 65 percent
Fullerton soil and similar components: 35 to 65 percent
Contrasting components: 10 to 15 percent

Minor Components

Similar components:
• Intermingled areas of Dewey soils
• Scattered areas of Collegedale soils
Contrasting components:
• Scattered areas of Bodine soils
• Isolated areas of Rock outcrop
• Rockdell soils in drainageways and on narrow flood plains

Typical Profile

Minvale

Surface layer:
0 to 3 inches—dark grayish brown, very friable gravelly silt loam
Subsurface layer:
3 to 13 inches—light yellowish brown, friable gravelly silt loam
Subsoil:
13 to 21 inches—yellowish brown, friable gravelly silty clay loam
21 to 28 inches—strong brown, firm gravelly silty clay loam

28 to 39 inches—mottled red, strong brown, and yellowish brown, firm gravelly clay
39 to 68 inches—mottled yellowish red, strong brown, yellowish brown, and very pale brown, firm very gravelly clay

Fullerton

Surface layer:
0 to 5 inches—brown, friable gravelly silt loam
Subsurface layer:
5 to 11 inches—strong brown, friable gravelly silt loam
Subsoil:
11 to 19 inches—strong brown, friable gravelly silty clay loam
19 to 33 inches—strong brown, friable gravelly clay with yellowish red mottles
33 to 44 inches—yellowish red, friable very gravelly clay with strong brown mottles
44 to 63 inches—yellowish red, firm extremely gravelly clay with brownish yellow mottles

Soil Properties and Qualities

Minvale

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Fullerton

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• The main management concern in areas used for cultivated crops is the hazard of erosion.
• Erosion is a severe hazard if a conventional tillage system is used.
• The steepness of slope prevents the use of most tillage equipment.

Pasture and hay

Suitability: Poorly suited
Management considerations:
• The main limitation is the slope.
• The steepness of slope increases the difficulty of properly managing pastures and limits the use of these soils as hayland.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, plant competition, and seedling mortality.
• The hazard of erosion can be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water breaks and culverts.
• Temporary roads that are no longer used can be closed and protected by seeding and by installing water breaks.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation only when large, specialized equipment is used.
• Slopes generally are broken up enough or are short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• When establishing a new forest crop, the seedling mortality rate may be high because of the moderate available water capacity and the gravelly surface layer.
• Aspect and the stoniness should be carefully considered when planting sites are selected for seedlings.
• Reinforcement plantings can be made until the desired stand is attained.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Suited

Management considerations:
- The potential for woodland wildlife habitat is good.
- Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
- Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
- Food plots or areas of green browse can be established along logging roads and trails.
- The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
- Den trees should not be harvested.
- Brush piles or other nesting sites are needed.

Urban uses

Suitability: Poorly suited
Management considerations:
- The main limitations affecting urban uses are the moderate permeability, low strength, and the steepness of slope.
- Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 7e

MnC—Minvale gravelly silt loam, 5 to 12 percent slopes

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Upland footslopes and side slopes
Size of areas: 5 to 120 acres
Major land use: Woodland, hay, or pasture

Composition

Minvale soil and similar components: 85 to 95 percent
Contrasting components: 5 to 15 percent

Minor Components

Similar components:
- Intermingled areas of Collegedale and Waynesboro soils

Contrasting components:
- Hamblen and Toccoa soils along streams and drainageways
- Small areas of Apison and Armuchee soils

Typical Profile

Surface layer:
0 to 3 inches—dark grayish brown, very friable gravelly silt loam
Subsurface layer:
3 to 13 inches—light yellowish brown, friable gravelly silt loam
Subsoil:
13 to 21 inches—yellowish brown, friable gravelly silty clay loam
21 to 28 inches—strong brown, firm gravelly silty clay loam
28 to 39 inches—mottled red, strong brown, and yellowish brown, firm gravelly clay
39 to 68 inches—mottled yellowish red, strong brown, yellowish brown, and very pale brown, firm very gravelly clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Suited
Management considerations:
- The main management concern is the hazard of erosion.
- Erosion is a moderate hazard if a conventional tillage system is used.
- The gravelly surface layer may restrict tillage.
- Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
- A crop rotation that includes grasses and legumes helps to control erosion.
- Terraces, diversions, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and hay

Suitability: Well suited
Management considerations:
- Few limitations affect the management of pasture and hayland.

• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
• The potential for openland and woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Trees and brush along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Suited
Management considerations:
• Few limitations affect urban uses.
• The steepness of slope is a limitation affecting most urban uses.
• The gravelly surface layer may cause problems in areas used for lawns or when the soil is landscaped.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 3e

MnD—Minvale gravelly silt loam, 12 to 25 percent slopes

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Upland footslopes and side slopes
Size of areas: 5 to 120 acres
Major land use: Woodland, hay, or pasture

Composition

Minvale soil and similar components: 85 to 95 percent
Contrasting components: 5 to 15 percent

Minor Components

Similar components:
• Intermingled areas of Collegedale and Waynesboro soils
Contrasting components:
• Hamblen and Toccoa soils along streams and drainageways
• Small areas of Apison, Coile, Corryton, and Townley soils

Typical Profile

Surface layer:
0 to 3 inches—dark grayish brown, very friable gravelly silt loam
Subsurface layer:
3 to 13 inches—light yellowish brown, friable gravelly silt loam
Subsoil:
13 to 21 inches—yellowish brown, friable gravelly silty clay loam
21 to 28 inches—strong brown, firm gravelly silty clay loam
28 to 39 inches—mottled red, strong brown, and yellowish brown, firm gravelly clay
39 to 68 inches—mottled yellowish red, strong brown, yellowish brown, and very pale brown, firm very gravelly clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches

Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Poorly suited
Management considerations:
• The main management concern is the hazard of erosion.
• Erosion is a severe hazard if a conventional tillage system is used.
• The gravelly surface layer may restrict tillage.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• A crop rotation that includes grasses and legumes helps to control erosion.
• Grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and hay

Suitability: Suited
Management considerations:
• The main limitation is the steepness of slope.
• The steepness of slope increases the difficulty of properly managing pastures and limits the use of this soil as hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Well suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, seedling mortality, and plant competition.
• The hazard of erosion can be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water breaks and culverts.
• Temporary roads that are no longer used can be closed and protected by seeding and by installing water breaks.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation only when large, specialized equipment is used.
• Slopes generally are broken up enough or are short enough that conventional equipment can be used.
• When establishing a new forest crop, the seedling mortality rate may be high because of the gravelly surface layer.
• Aspect and the content of gravel in the surface layer should be carefully considered when planting sites are selected for seedlings.
• Reinforcement plantings can be made until the desired stand is attained.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cutting or by applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Suited
Management considerations:
• The potential for openland wildlife habitat is fair, and the potential for woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Trees and brush along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Suited
Management considerations:
• The main limitation affecting urban uses is the steepness of slope.
• The gravelly surface layer may cause problems in areas used for lawns or when the soil is landscaped.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 4e

NcC—Needmore-Corryton complex, 5 to 12 percent slopes

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Dissected ridge crests and side slopes
Size of areas: 5 to 130 acres
Major land use: Woodland

Composition

Needmore soil and similar components: 40 to 70 percent
Corryton soil and similar components: 30 to 60 percent
Contrasting components: 5 to 15 percent

Minor Components

Similar components:
• Soils that have less clay and more rock fragments in the subsoil than the Needmore and Corryton soils
Contrasting components:
• Scattered areas of soils that are less than 40 inches deep over bedrock
• Intermingled areas of Rock outcrop

Typical Profile

Needmore

Surface layer:
0 to 7 inches—dark yellowish brown, very friable silt loam
Subsoil:
7 to 12 inches—yellowish brown, friable silty clay loam
12 to 26 inches—strong brown, friable clay loam with yellowish brown mottles
26 to 31 inches—strong brown, firm clay with yellowish brown mottles
31 to 35 inches—strong brown, firm channery clay
Soft bedrock:
35 to 40 inches—soft, brownish shale

Corryton

Surface layer:
0 to 9 inches—dark yellowish brown, friable silt loam
Subsoil:
9 to 17 inches—strong brown, friable silty clay loam
17 to 26 inches—yellowish brown, friable silty clay with pale yellow and yellowish red mottles
26 to 41 inches—yellowish brown, friable clay with pale yellow and yellowish red mottles
Substratum:
41 to 75 inches—brownish yellow, firm channery silty clay loam with pale yellow and yellowish red mottles

Soil Properties and Qualities

Needmore

Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Strongly acid to slightly acid
Depth to soft bedrock: 20 to 40 inches
Shrink-swell potential: Moderate

Corryton

Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid to moderately acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Suited
Management considerations:
• The main management concern in areas used for cultivated crops is the hazard of erosion.
• The moderate available water capacity in areas of the Needmore soil is an additional limitation.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• A crop rotation that includes grasses and legumes helps to control erosion.
• Terraces, diversions, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and hay

Suitability: Suited
Management considerations:
• The main limitation is the moderate available water capacity of the Needmore soil.

• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
• The potential for openland and woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Suited
Management considerations:
• The main limitations affecting urban uses are the clayey subsoil, the shrink-swell potential, and the depth to bedrock.
• The moderately slow permeability and the clayey subsoil are limitations affecting some sanitary facilities and building site development.
• The shrink-swell potential in the subsoil may be a problem when footers and basements are constructed.
• The depth to bedrock in areas of the Needmore soil is a limitation affecting some building site development and sanitary facilities.

Interpretive Group

Land capability classification: Needmore—4e; Corryton—3e

Ne—Neubert loam, frequently flooded

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Narrow flood plains and intermittent drainageways
Size of areas: 5 to 550 acres
Slope range: 0 to 3 percent
Major land use: Hay, pasture, or woodland

Composition

Neubert soil and similar components: 80 to 95 percent
Contrasting components: 5 to 20 percent

Minor Components

Similar components:
• Well drained soils on natural levees
• Intermingled areas of Hamblen and Steadman soils
• Soils that are occasionally flooded
Contrasting components:
• Small areas of Alcoa soils, which are not subject to flooding
• Isolated areas of Bloomingdale soils

Typical Profile

Surface layer:
0 to 6 inches—dark reddish brown, friable loam
Subsoil:
6 to 19 inches—dark reddish brown, friable sandy clay loam
19 to 45 inches—dark reddish brown, friable loam
Buried surface layer:
45 to 56 inches—dark reddish gray, friable loam
Buried subsoil:
56 to 74 inches—dark grayish brown, friable loam with reddish brown mottles

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate

Available water capacity: High
Seasonal high water table: Between depths of 21 and 40 inches
Flooding: Frequent
Soil reaction: Strongly acid to neutral
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Suited
Management considerations:
• The main management concern in areas used for cultivated crops is the flooding.
• The wetness delays planting and harvesting in some years.
• Some crops may be damaged by the flooding in winter and early spring.
• Conservation tillage, crop residue management, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.

Pasture and hay

Suitability: Well suited
Management considerations:
• Few limitations affect the management of pasture and hayland.
• Deferment of grazing when the soil is wet minimizes compaction and damage to the stand and helps to prevent excessive runoff.
• The forage species that are tolerant of the wetness and the flooding grow best.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production.

Woodland

Suitability: Suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
• The potential for openland wildlife habitat is fair, and the potential for woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Poorly suited
Management considerations:
• The main limitations affecting urban uses are the flooding and the wetness.
• The flooding and the wetness are difficult to overcome.
• A suitable alternative site should be selected.

Interpretive Group

Land capability classification: 2w

NnC—Nonaburg-Needmore complex, 5 to 12 percent slopes, very rocky

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Dissected ridge crests and side slopes
Size of areas: 5 to 115 acres
Major land use: Woodland

Composition

Nonaburg soil and similar components: 40 to 70 percent
Needmore soil and similar components: 20 to 55 percent
Rock outcrop: 2 to 10 percent
Contrasting components: 5 to 15 percent

Minor Components

Similar components:
• Soils that have less clay and more rock fragments in the subsoil than the Nonaburg and Needmore soils
• Scattered areas of soils that are 40 to 60 inches deep over bedrock
• Small areas of soils on ridgetops where the slopes are less than 5 percent
Contrasting components:
• Scattered areas of Corryton soils

Typical Profile

Nonaburg

Surface layer:
0 to 2 inches—dark brown, friable silty clay loam
Subsoil:
2 to 10 inches—dark yellowish brown, firm clay with yellowish brown mottles
Soft bedrock:
10 to 39 inches—soft, brownish shale

Needmore

Surface layer:
0 to 7 inches—dark yellowish brown, very friable silt loam
Subsoil:
7 to 12 inches—yellowish brown, friable silty clay loam
12 to 26 inches—strong brown, friable clay loam with yellowish brown mottles
26 to 31 inches—strong brown, firm clay with yellowish brown mottles
31 to 35 inches—strong brown, firm channery clay
Soft bedrock:
35 to 40 inches—soft, brownish shale

Soil Properties and Qualities

Nonaburg

Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Very low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Slightly acid to slightly alkaline
Depth to soft bedrock: 8 to 20 inches
Shrink-swell potential: Moderate

Needmore

Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Strongly acid to slightly acid
Depth to soft bedrock: 20 to 40 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Poorly suited
Management considerations:
• The main limitations affecting cultivated crops are erosion and the depth to bedrock in areas of the Nonaburg soil.
• The very low available water capacity of the Nonaburg soil and the Rock outcrop are additional limitations.

Pasture and hay

Suitability: Poorly suited
Management considerations:
• The main limitations are the very low available water capacity of the Nonaburg soil, the moderate available water capacity of the Needmore soil, and the Rock outcrop.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are plant competition, seedling mortality, and the hazard of windthrow.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• When establishing a new forest crop, the seedling mortality rate may be high because of the shallow rooting depth and the very low available water capacity in areas of the Nonaburg soil.
• Aspect and the depth to bedrock should be carefully considered when planting sites are selected for seedlings.
• Reinforcement plantings can be made until the desired stand is attained.
• Windthrow is a hazard in some areas because of the shallow root zone in the Nonaburg soil.

- The windthrow hazard can be reduced by applying a carefully regulated thinning and salvage program.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Suited
Management considerations:
- The potential for openland wildlife habitat is poor in areas of the Nonaburg soil and good in areas of the Needmore soil.
- The potential for woodland wildlife habitat is fair in areas of the Nonaburg soil and good in areas of the Needmore soil.
- Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
- Field borders and filter strips provide good wildlife habitat.
- Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
- Buffer zones along streams provide benefits to wildlife as well as erosion control.
- Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
- Food plots or areas of green browse can be established along logging roads and trails.
- The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
- Den trees should not be harvested.
- Brush piles or other nesting sites are needed.

Urban uses

Suitability: Poorly suited
Management considerations:
- The main limitations affecting urban uses are the clayey subsoil, the shrink-swell potential, and the depth to bedrock.
- The moderately slow permeability, the clayey subsoil, and the depth to bedrock are limitations affecting some sanitary facilities and building site development.
- The shrink-swell potential in the subsoil may be a problem when footers and basements are constructed.
- A suitable alternative site should be selected.

Interpretive Group

Land capability classification: Nonaburg—6s; Needmore—4e

NnD—Nonaburg-Needmore complex, 12 to 25 percent slopes, very rocky

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Dissected ridges and side slopes
Size of areas: 5 to 175 acres
Major land use: Woodland

Composition

Nonaburg soil and similar components: 40 to 70 percent
Needmore soil and similar components: 20 to 55 percent
Rock outcrop: 2 to 10 percent
Contrasting components: 5 to 15 percent

Minor Components

Similar components:
- Soils that have less clay and more rock fragments in the subsoil than the Nonaburg and Needmore soils
- Scattered areas of soils that are 40 to 60 inches deep over bedrock
- Small areas of soils on ridgetops where the slopes are less than 12 percent

Contrasting components:
- Small areas of Corryton soils

Typical Profile

Nonaburg

Surface layer:
0 to 2 inches—dark brown, friable silty clay loam
Subsoil:
2 to 10 inches—dark yellowish brown, firm clay with yellowish brown mottles
Soft bedrock:
10 to 39 inches—soft, brownish shale

Needmore

Surface layer:
0 to 7 inches—dark yellowish brown, very friable silt loam
Subsoil:
7 to 12 inches—yellowish brown, friable silty clay loam
12 to 26 inches—strong brown, friable clay loam with yellowish brown mottles
26 to 31 inches—strong brown, firm clay with yellowish brown mottles
31 to 35 inches—strong brown, firm channery clay

Soft bedrock:
35 to 40 inches—soft, brownish shale

Soil Properties and Qualities

Nonaburg

Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Very low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Slightly acid to slightly alkaline
Depth to soft bedrock: 8 to 20 inches
Shrink-swell potential: Moderate

Needmore

Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Strongly acid to slightly acid
Depth to soft bedrock: 20 to 40 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• The main limitations affecting cultivated crops are erosion and the depth to bedrock in areas of the Nonaburg soil.
• The very low available water capacity in areas of the Nonaburg soil and the Rock outcrop are additional limitations.

Pasture and hay

Suitability: Poorly suited
Management considerations:
• The main limitations are the Rock outcrop, the very low available water capacity of the Nonaburg soil, the moderate available water capacity of the Needmore soil, and the steepness of slope on both soils.
• The steepness of slope increases the difficulty of properly managing pastures and limits the use of these soils as hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, plant competition, seedling mortality, and the hazard of windthrow.
• The hazard of erosion can be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water breaks and culverts.
• Temporary roads that are no longer used can be closed and protected by seeding and by installing water breaks.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation only when large, specialized equipment is used.
• Slopes generally are broken up enough or are short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• When establishing a new forest crop, the seedling mortality rate may be high because of the shallow rooting depth and the very low available water capacity in areas of the Nonaburg soil.
• Aspect and the depth to bedrock should be carefully considered when planting sites are selected for seedlings.
• Reinforcement plantings can be made until the desired stand is attained.
• Windthrow is a hazard in some areas because of the shallow root zone in the Nonaburg soil.
• The windthrow hazard can be reduced by applying a carefully regulated thinning and salvage program.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
• The potential for openland wildlife habitat is poor in areas of the Nonaburg soil and good in areas of the Needmore soil.

- The potential for woodland wildlife habitat is fair in areas of the Nonaburg and Needmore soils.
- Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
- Field borders and filter strips provide good wildlife habitat.
- Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
- Buffer zones along streams provide benefits to wildlife as well as erosion control.
- Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
- Food plots or areas of green browse can be established along logging roads and trails.
- The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
- Den trees should not be harvested.
- Brush piles or other nesting sites are needed.

Urban uses

Suitability: Unsuited
Management considerations:
- The main limitations affecting urban uses are the clayey subsoil, the shrink-swell potential, the depth to bedrock, and the steepness of slope.
- A suitable alternative site should be selected.

Interpretive Group

Land capability classification: Nonaburg—6s; Needmore—6e

NoF—Nonaburg-Needmore-Rock outcrop complex, 25 to 60 percent slopes

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Dissected ridge crests and side slopes
Size of areas: 5 to 115 acres
Major land use: Woodland

Composition

Nonaburg soil and similar components: 60 to 90 percent
Needmore soil and similar components: 5 to 30 percent
Rock outcrop and similar components: 5 to 20 percent
Contrasting components: 5 to 15 percent

Minor Components

Similar components:
- Soils that have less clay and more rock fragments in the subsoil than the Nonaburg and Needmore soils

Contrasting components:
- Scattered areas of soils that are more than 40 inches deep over bedrock

Typical Profile

Nonaburg

Surface layer:
0 to 2 inches—dark brown, friable silty clay loam
Subsoil:
2 to 10 inches—dark yellowish brown, firm clay with yellowish brown mottles
Soft bedrock:
10 to 39 inches—soft, brownish shale

Needmore

Surface layer:
0 to 7 inches—dark yellowish brown, very friable silt loam
Subsoil:
7 to 12 inches—yellowish brown, friable silty clay loam
12 to 26 inches—strong brown, friable clay loam with yellowish brown mottles
26 to 31 inches—strong brown, firm clay with yellowish brown mottles
31 to 35 inches—strong brown, firm channery clay
Soft bedrock:
35 to 40 inches—soft, brownish shale

Rock outcrop

The Rock outcrop occurs as areas of exposed shale or limestone intermingled with areas where less than 2 or 3 inches of soil material overlies shale or limestone bedrock. It is in scattered areas throughout the map unit. Most outcrops protrude from a few inches to about 2 feet above the surface, but some are on nearly vertical bluffs. The Rock outcrop supports little or no vegetation.

Soil Properties and Qualities

Nonaburg

Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Very low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Slightly acid to slightly alkaline

Depth to soft bedrock: 8 to 20 inches
Shrink-swell potential: Moderate

Needmore

Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Strongly acid to slightly acid
Depth to soft bedrock: 20 to 40 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• The main management concerns in areas used for cultivated crops are the hazard of erosion, the depth to bedrock, and the Rock outcrop.

Pasture and hay

Suitability: Unsuited
Management considerations:
• The main limitations are the Rock outcrop, the steepness of slope, and the very low or low available water capacity in areas of the Nonaburg and Needmore soils.

Woodland

Suitability: Poorly suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, plant competition, seedling mortality, and the hazard of windthrow.
• The hazard of erosion can be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water breaks and culverts.
• Temporary roads that are no longer used can be closed and protected by seeding and by installing water breaks.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation only when large, specialized equipment is used.
• Slopes generally are broken up enough or are short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• When establishing a new forest crop, the seedling mortality rate may be high because of the shallow rooting depth and the very low available water capacity in areas of the Nonaburg soil.
• Aspect and the depth to bedrock should be carefully considered when planting sites are selected for seedlings.
• Reinforcement plantings can be made until the desired stand is attained.
• Windthrow is a hazard in some areas because of the shallow root zone in the Nonaburg soil.
• The windthrow hazard can be reduced by applying a carefully regulated thinning and salvage program.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
• The potential for woodland wildlife habitat is fair.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Unsuited
Management considerations:
• The main limitations affecting urban uses are the clayey subsoil, the shrink-swell potential, the depth to bedrock, and the steepness of slope.
• A suitable alternative site should be selected.

Interpretive Group

Land capability classification: Nonaburg—7s; Needmore—7e; Rock outcrop—8s

Pe—Pettyjon silty clay loam, occasionally flooded

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Upland depressions and drainageways
Size of areas: 5 to 15 acres
Slope range: 0 to 3 percent
Major land use: Pasture, hay, or cropland

Composition

Pettyjon soil and similar components: 85 to 95 percent
Contrasting components: 5 to 15 percent

Minor Components

Similar components:
• Hamblen and Steadman soils in landscape positions similar to those of the Pettyjon soil
• Etowah soils on footslopes
• Soils that have a very dark brown surface layer
Contrasting components:
• Soils that are not subject to flooding or ponding
• Isolated areas of somewhat poorly drained soils

Typical Profile

Surface layer:
0 to 7 inches—brown, very friable silty clay loam
Subsoil:
7 to 18 inches—brown, very friable silty clay loam
18 to 33 inches—dark brown, very friable loam
33 to 61 inches—dark reddish brown, very friable loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: Between depths of 60 and 72 inches
Flooding: Occasional
Soil reaction: Slightly acid or neutral
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Suited
Management considerations:
• Few limitations affect cropland.
• Some crops may be damaged by flooding or ponding in the winter and early spring.
• Conservation tillage, crop residue management, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.

Pasture and hay

Suitability: Well suited
Management considerations:
• Few limitations affect the management of pasture and hayland.
• Deferment of grazing when the soil is wet minimizes compaction and damage to the stand and helps to prevent excessive runoff.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
• The potential for openland wildlife habitat is fair, and the potential for woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Poorly suited
Management considerations:
• The main limitations affecting urban uses are the flooding and the ponding.
• The flooding and the ponding are difficult to overcome.
• A suitable alternative site should be selected.

Interpretive Group

Land capability classification: 2w

PM—Pits, Mines, and Dumps

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Size of areas: 20 to 170 acres
Major land use: Mining of limestone and barite

Composition

Pits, Mines, and Dumps and similar components: 85 to 95 percent
Contrasting components: 5 to 15 percent

Minor Components

Similar components:
• Highwalls, spoil piles, strippings, and other debris
Contrasting components:
• Dewey, Fullerton, and Waynesboro soils

Typical Profile

A typical profile is not given for this map unit.

Soil Properties and Qualities

The soil material in this map unit varies greatly.

Use and Management

• Extensive reclamation, land shaping, and intensive erosion-control measures are needed for most uses.
• Onsite investigation is needed to determine the limitations affecting any proposed use.

Interpretive Group

Land capability classification: None assigned

RhF—Red Hills and Steekee soils, 35 to 80 percent slopes, rocky

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Side slopes and backslopes
Size of areas: 10 to several hundred acres
Major land use: Woodland

Composition

Red Hills soil and similar components: 50 to 70 percent
Steekee soil and similar components: 30 to 50 percent
Rock outcrop: 0.1 to 2 percent
Contrasting components: 5 to 15 percent

Minor Components

Similar components:
• Soils that have more clay in the subsoil than the Red Hills soil
• Soils that have a surface layer of loam or clay loam
Contrasting components:
• Alcoa soils on footslopes and in coves
• Narrow strips of Neubert soils along drainageways and intermittent streams
• Intermingled areas of Tellico soils

Typical Profile

Red Hills

Surface layer:
0 to 4 inches—dark reddish brown, very friable sandy loam
Subsoil:
4 to 16 inches—dark reddish brown, friable gravelly sandy loam
16 to 26 inches—dark reddish brown, friable very gravelly loam
Soft bedrock:
26 to 32 inches—dark reddish brown, soft sandstone

Steekee

Surface layer:
0 to 4 inches—dark reddish brown, very friable sandy loam
Subsoil:
4 to 10 inches—reddish brown, friable gravelly loam and gravelly sandy clay loam
Substratum:
10 to 14 inches—intermingled reddish brown, friable very gravelly sandy clay loam and soft quartzose sandstone
Bedrock:
14 to 60 inches—interbedded light olive brown, soft sandstone and reddish brown, soft shale

Soil Properties and Qualities

Red Hills

Drainage class: Well drained

Permeability: Moderately rapid
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid to moderately acid
Depth to soft bedrock: 20 to 40 inches
Shrink-swell potential: Low

Steekee

Drainage class: Well drained
Permeability: Moderate or moderately rapid
Available water capacity: Very low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid to moderately acid
Depth to soft bedrock: 12 to 20 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• The main limitations affecting cultivated crops are erosion, the depth to bedrock in areas of the Steekee soil, the Rock outcrop, and the steepness of slope.

Pasture and hay

Suitability: Unsuited
Management considerations:
• The main limitations are the steepness of slope and the Rock outcrop.
• Additional limitations are the moderate available water capacity in the Red Hills soil and the very low available water capacity in the Steekee soil.
• The steepness of slope and the Rock outcrop increase the difficulty of properly managing pastures and limit the use of these soils as hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Suited (fig. 7)
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, and plant competition.
• The hazard of windthrow and the seedling mortality rate are additional limitations in areas of the Steekee soil.
• The hazard of erosion can be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water breaks and culverts.
• Temporary roads that are no longer used can be closed and protected by seeding and by installing water breaks.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation only when large, specialized equipment is used.
• Slopes generally are broken up enough or are short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• Windthrow is a hazard in some areas because of the shallow root zone in the Steekee soil.
• The windthrow hazard can be reduced by applying a carefully regulated thinning and salvage program.
• When establishing a new forest crop, the seedling mortality rate may be high because of the shallow rooting depth and the very low available water capacity in areas of the Steekee soil.
• Aspect and the depth to bedrock should be carefully considered when planting sites are selected for seedlings.
• Reinforcement plantings can be made until the desired stand is attained.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Suited
Management considerations:
• The potential for woodland wildlife habitat is fair in areas of the Red Hills soil and poor in areas of the Steekee soil.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.

Figure 7.—An area of Red Hills and Steekee soils, 35 to 80 percent slopes, rocky, on the side slopes. These very steep soils are suited to woodland.

• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Unsuited
Management considerations:
• The main limitations affecting urban uses are the depth to bedrock and the steepness of slope.
• A suitable alternative site should be selected.

Interpretive Group

Land capability classification: 7e

Rk—Rockdell gravelly loam, occasionally flooded

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Flood plains and drainageways near cherty uplands
Size of areas: 5 to 195 acres
Slope range: 0 to 3 percent
Major land use: Pasture, hay, or woodland

Composition

Rockdell soil and similar components: 85 to 100 percent
Contrasting components: 0 to 15 percent

Minor Components

Similar components:
• Intermingled areas of Hamblen soils
• Pettyjon soils on natural levees and at the slightly higher elevations
• Soils that are subject to rare flooding
Contrasting components:
• Small areas of Minvale soils on footslopes and stream terraces
• Isolated areas of soils that are moderately well drained and have a fragipan

Typical Profile

Surface layer:
0 to 10 inches—brown, very friable gravelly loam
Subsoil:
10 to 18 inches—yellowish brown, friable gravelly loam
18 to 29 inches—yellowish brown, friable extremely gravelly loam
Substratum:
29 to 41 inches—light yellowish brown, friable very gravelly loam
Buried subsoil:
41 to 60 inches—strong brown, friable very cobbly clay loam with light gray and yellowish red mottles

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate or moderately rapid
Available water capacity: Moderate
Seasonal high water table: Between depths of 42 and 60 inches
Flooding: Occasional
Soil reaction: Very strongly acid to slightly acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Suited
Management considerations:
• Few limitations affect cropland.
• Some crops may be damaged by the flooding in winter and early spring.
• The gravelly surface layer may restrict tillage.
• Conservation tillage, crop residue management, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.

Pasture and hay

Suitability: Well suited
Management considerations:
• Few limitations affect the management of pasture and hayland.
• Deferment of grazing when the soil is wet minimizes compaction and damage to the stand and helps to prevent excessive runoff.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• When establishing a new forest crop, the seedling mortality rate may be high because of the gravelly surface layer.
• Aspect and the content of gravel in the surface layer should be carefully considered when planting sites are selected for seedlings.
• Reinforcement plantings can be made until the desired stand is attained.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Suited
Management considerations:
• The potential for openland and woodland wildlife habitat is fair.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Poorly suited
Management considerations:
• The main limitations affecting urban uses are the flooding and the wetness.
• The pebbles and cobbles throughout the soil will cause problems in areas used for lawns and when the soil is landscaped or used as a source of topsoil material.
• The flooding and the wetness are difficult to overcome.
• A suitable alternative site should be selected.

Interpretive Group

Land capability classification: 3w

RoF—Rock outcrop-Bradyville complex, 5 to 50 percent slopes

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Side slopes and ridges
Size of areas: 5 to 100 acres
Major land use: Woodland

Composition

Rock outcrop and similar components: 30 to 70 percent
Bradyville soil and similar components: 30 to 60 percent
Contrasting components: 5 to 20 percent

Minor Components

Similar components:
• Soils that have limestone bedrock at a depth of 20 to 40 inches
• Soils that have more gravel throughout than the Bradyville soil
• Dewey and Fullerton soils in landscape positions similar to those of the Bradyville soil
Contrasting components:
• Scattered areas of soils that have limestone bedrock within a depth of 20 inches

Typical Profile

Rock outcrop

The Rock outcrop occurs as areas of exposed limestone or dolomite or in areas that have less than 2 or 3 inches of soil material over the bedrock. Most outcrops protrude from a few inches to about 2 feet above the surface, but some are on nearly vertical bluffs that are up to 10 feet tall. The Rock outcrop supports little or no vegetation.

Bradyville

Surface layer:
0 to 7 inches—dark yellowish brown, friable gravelly silt loam
Subsoil:
7 to 20 inches—strong brown, friable clay
20 to 44 inches—yellowish red, firm clay
Bedrock:
44 to 48 inches—hard, gray limestone

Soil Properties and Qualities

Bradyville

Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Strongly acid to neutral
Depth to hard bedrock: 40 to 60 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• The main management concerns in areas used for cultivated crops are the hazard of erosion, the Rock outcrop, and the steepness of slope.

Pasture and hay

Suitability: Unsuited
Management considerations:
• The main limitations are the Rock outcrop and the steepness of slope.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, and plant competition in areas of the Bradyville soil.
• The hazard of erosion can be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water breaks and culverts.
• Temporary roads that are no longer used can be closed and protected by seeding and by installing water breaks.

• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation only when large, specialized equipment is used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• The depth to bedrock should be carefully considered when planting sites are selected for seedlings.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Suited
Management considerations:
• The potential for woodland wildlife habitat is good in areas of the Bradyville soil.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Unsuited
Management considerations:
• The main limitations affecting urban uses are the Rock outcrop and the steepness of slope.
• A suitable alternative site should be selected.

Interpretive Group

Land capability classification: Rock outcrop—8s; Bradyville—7e

ShB—Shady loam, 2 to 5 percent slopes

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Flood plains, drainageways, and stream terraces, mostly along Conasauga Creek
Size of areas: 5 to 50 acres
Major land use: Pasture, hay, or cropland

Composition

Shady soil and similar components: 85 to 95 percent
Contrasting components: 5 to 15 percent

Minor Components

Similar components:
• Hamblen soils in depressions and drainageways
• Etowah soils in landscape positions similar to those of the Shady soil
• Soils that have more gravel throughout than the Shady soil
• Soils that are subject to rare flooding
• Soils that have a seasonal high water table at a depth of 36 to 48 inches
Contrasting components:
• Small areas of Bloomingdale soils in depressions
• Intermingled areas of Townley soils

Typical Profile

Surface layer:
0 to 8 inches—brown, friable loam
Subsoil:
8 to 22 inches—dark yellowish brown, friable clay loam
22 to 36 inches—yellowish brown, friable clay loam
36 to 60 inches—yellowish brown, friable loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 60 inches
Flooding: None
Soil reaction: Very strongly acid to slightly acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Well suited
Management considerations:
• Few limitations affect cropland.
• Conservation tillage, crop residue management, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• Terraces, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and hay

Suitability: Well suited

Management considerations:
• Few limitations affect the management of pasture and hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
• The potential for openland and woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Well suited
Management considerations:
• Few limitations affect urban uses.

Interpretive Group

Land capability classification: 2e

ShC—Shady loam, 5 to 12 percent slopes

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Stream terraces
Size of areas: 5 to 20 acres
Major land use: Pasture, hay, or cropland

Composition

Shady soil and similar components: 85 to 95 percent
Contrasting components: 5 to 15 percent

Minor Components

Similar components:
• Hamblen soils in depressions and drainageways
• Etowah soils in landscape positions similar to those of the Shady soil
• Soils that have more gravel throughout than the Shady soil
• Soils that are subject to rare flooding
• Soils that have more clay in the lower part of the subsoil than the Shady soil
Contrasting components:
• Small areas of Bloomingdale soils in depressions
• Intermingled areas of Townley soils

Typical Profile

Surface layer:
0 to 8 inches—brown, friable loam
Subsoil:
8 to 22 inches—dark yellowish brown, friable clay loam
22 to 36 inches—yellowish brown, friable clay loam
36 to 60 inches—yellowish brown, friable loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 60 inches
Flooding: None
Soil reaction: Very strongly acid to slightly acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Suited
Management considerations:
• Erosion is a moderate hazard if a conventional tillage system is used.

• Conservation tillage, crop residue management, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• A crop rotation that includes grasses and legumes helps to control erosion.
• Terraces, diversions, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and hay

Suitability: Well suited
Management considerations:
• Few limitations affect the management of pasture and hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
• The potential for openland and woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Suited
Management considerations:
• Few limitations affect urban uses.
• The steepness of slope is a limitation affecting some urban uses.
• Proper design, installation, and site preparation may help to overcome the slope.

Interpretive Group

Land capability classification: 3e

St—Steadman silty clay loam, frequently flooded

Setting

Physiographic area: Southern Appalachian Ridges and Valleys (in the Chestuee Creek area)
Landscape position: Flood plains
Size of areas: 5 to 320 acres
Slope range: 0 to 3 percent
Major land use: Pasture and hay

Composition

Steadman soil and similar components: 90 to 100 percent
Contrasting components: 0 to 10 percent

Minor Components

Similar components:
• Pettyjon soils at the higher elevations and on natural levees
• Intermingled areas of Hamblen soils
Contrasting components:
• Bloomingdale soils in depressions and old meander channels
• Small areas of soils that are not subject to flooding

Typical Profile

Surface layer:
0 to 7 inches—dark yellowish brown, friable silty clay loam
Subsoil:
7 to 19 inches—strong brown, friable silty clay loam
19 to 27 inches—brown, friable silty clay loam with dark grayish brown mottles
27 to 36 inches—brown, friable silty clay loam with light brownish gray mottles

Substratum:
36 to 50 inches—brown, friable silty clay loam with light brownish gray mottles
50 to 61 inches—brown, friable silty clay loam with strong brown and grayish brown mottles
61 to 64 inches—brown, friable loam with light brownish gray mottles

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderately slow
Available water capacity: High
Seasonal high water table: Between depths of 18 and 36 inches
Flooding: Frequent
Soil reaction: Moderately acid to slightly alkaline
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Suited
Management considerations:
• Few limitations affect cropland.
• The wetness delays planting and harvesting in some years.
• Some crops may be damaged by the flooding in winter and early spring.
• Conservation tillage, crop residue management, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.

Pasture and hay

Suitability: Well suited
Management considerations:
• Few limitations affect the management of pasture and hayland.
• Deferment of grazing when the soil is wet minimizes compaction and damage to the stand and helps to prevent excessive runoff.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Suited
Management considerations:
• The potential for openland wildlife habitat is fair, and the potential for woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Poorly suited
Management considerations:
• The main limitations affecting urban uses are the flooding and the wetness.
• The flooding and the wetness are difficult to overcome.
• A suitable alternative site should be selected.

Interpretive Group

Land capability classification: 2w

SuC—Sunlight-Apison complex, 5 to 12 percent slopes, very rocky

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Dissected ridge crests and side slopes
Size of areas: 5 to 115 acres
Major land use: Woodland

Composition

Sunlight soil and similar components: 50 to 80 percent
Apison soil and similar components: 20 to 45 percent
Rock outcrop: 2 to 10 percent
Contrasting components: 5 to 10 percent

Minor Components

Similar components:
- Soils that have less clay in the subsoil than the Apison soil
- Intermingled areas of Coile and Townley soils

Contrasting components:
- Scattered areas of soils that are more than 40 inches deep over bedrock

Typical Profile

Sunlight

Surface layer:
0 to 3 inches—dark reddish brown, very friable channery sandy loam
Subsoil:
3 to 13 inches—reddish brown, friable very channery loam
Soft bedrock:
13 to 20 inches—fractured and tilted, reddish siltstone, sandstone, and shale

Apison

Surface layer:
0 to 3 inches—brown, friable loam
Subsoil:
3 to 19 inches—yellowish red, friable clay loam with brown mottles
19 to 22 inches—strong brown, friable channery clay loam with brownish yellow mottles
Substratum:
22 to 60 inches—brown, friable sandy loam; layers of olive yellow, soft, sandy shale bedrock in the lower part

Soil Properties and Qualities

Sunlight

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to soft bedrock: 10 to 20 inches
Shrink-swell potential: Low

Apison

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to soft bedrock: 20 to 40 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Poorly suited
Management considerations:
- The main limitations affecting cultivated crops are erosion and the depth to bedrock in areas of the Sunlight soil.
- The very low available water capacity in the Sunlight soil and the moderate available water capacity in the Apison soil are additional limitations.

Pasture and hay

Suitability: Suited
Management considerations:
- The main limitations are the Rock outcrop, the very low available water capacity of the Sunlight soil, and the moderate available water capacity of the Apison soil.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Suited
Management considerations:
- The main management concerns are plant competition, seedling mortality, and the hazard of windthrow.
- Plant competition from undesirable species may be a problem when establishing a new forest crop in areas of the Apison soil.
- Proper site preparation helps to control the plant competition that may occur immediately after planting.
- Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
- When establishing a new forest crop, the seedling mortality rate may be high because of the shallow rooting depth and the very low available water capacity in areas of the Sunlight soil.

• Aspect and the depth to bedrock should be carefully considered when planting sites are selected for seedlings.
• Reinforcement plantings can be made until the desired stand is attained.
• Windthrow is a hazard in some areas because of the shallow root zone in the Sunlight soil.
• The windthrow hazard can be reduced by applying a carefully regulated thinning and salvage program.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Suited
Management considerations:
• The potential for woodland wildlife habitat is fair in areas of the Sunlight soil and good in areas of the Apison soil.
• The potential for openland wildlife habitat is good in areas of the Apison soil.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Poorly suited
Management considerations:
• The main limitations affecting urban uses are the depth to bedrock and the steepness of slope.
• The depth to bedrock and the steepness of slope are limitations affecting most building site development and sanitary facilities.
• A suitable alternative site should be selected.

Interpretive Group

Land capability classification: Sunlight—6e; Apison—3e

SuD—Sunlight-Apison complex, 12 to 25 percent slopes, very rocky

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Dissected ridge crests and side slopes
Size of areas: 5 to 125 acres
Major land use: Woodland

Composition

Sunlight soil and similar components: 50 to 80 percent
Apison soil and similar components: 20 to 50 percent
Rock outcrop: 2 to 10 percent
Contrasting components: 10 to 15 percent

Minor Components

Similar components:
• Soils that have less clay in the subsoil than the Apison soil
• Intermingled areas of Coile and Townley soils
Contrasting components:
• Scattered areas of soils that are more than 40 inches deep over bedrock

Typical Profile

Sunlight

Surface layer:
0 to 3 inches—dark reddish brown, very friable channery sandy loam
Subsoil:
3 to 13 inches—reddish brown, friable very channery loam
Soft bedrock:
13 to 20 inches—fractured and tilted, reddish siltstone, sandstone, and shale

Apison

Surface layer:
0 to 3 inches—brown, friable loam
Subsoil:
3 to 19 inches—yellowish red, friable clay loam with brown mottles
19 to 22 inches—strong brown, friable channery clay loam with brownish yellow mottles
Substratum:
22 to 60 inches—brown, friable sandy loam; layers of olive yellow, soft, sandy shale bedrock in the lower part

Soil Properties and Qualities

Sunlight

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to soft bedrock: 10 to 20 inches
Shrink-swell potential: Low

Apison

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to soft bedrock: 20 to 40 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• The main limitations affecting cultivated crops are erosion and the depth to bedrock in areas of the Sunlight soil.

Pasture and hay

Suitability: Poorly suited
Management considerations:
• The main limitations are the Rock outcrop, the steepness of slope, the very low available water capacity of the Sunlight soil, and the moderate available water capacity of the Apison soil.
• The steepness of slope increases the difficulty of properly managing pastures and limits the use of these soils as hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the equipment limitation, the hazard of erosion, plant competition, seedling mortality, and the hazard of windthrow.
• The hazard of erosion can be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water breaks and culverts.
• Temporary roads that are no longer used can be closed and protected by seeding and by installing water breaks.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation only when large, specialized equipment is used.
• In areas where slopes are long and unbroken, logs may be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• Plant competition from undesirable species may be a problem when establishing a new forest crop in areas of the Apison soil.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• When establishing a new forest crop, the seedling mortality rate may be high because of the shallow rooting depth and the very low available water capacity in areas of the Sunlight soil.
• Aspect and the depth to bedrock should be carefully considered when planting sites are selected for seedlings.
• Reinforcement plantings can be made until the desired stand is attained.
• Windthrow is a hazard in some areas because of the shallow root zone in the Sunlight soil.
• The windthrow hazard can be reduced by applying a carefully regulated thinning and salvage program.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Suited
Management considerations:
• The potential for woodland wildlife habitat is fair in areas of the Sunlight soil and good in areas of the Apison soil.
• The potential for openland wildlife habitat is fair in areas of the Apison soil.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.

• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Poorly suited
Management considerations:
• The main limitations affecting urban uses are the depth to bedrock and the steepness of slope.
• The depth to bedrock and the steepness of slope are limitations affecting most building site development and sanitary facilities.
• A suitable alternative site should be selected.

Interpretive Group

Land capability classification: Sunlight—7e; Apison—4e

TaB—Tasso loam, 2 to 5 percent slopes

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Footslopes and stream terraces
Size of areas: 5 to 95 acres
Major land use: Pasture, hay, or woodland

Composition

Tasso soil and similar components: 85 to 95 percent
Contrasting components: 5 to 15 percent

Minor Components

Similar components:
• Scattered areas of Bellamy soils
• Intermingled areas of Etowah and Shady soils
Contrasting components:
• Bloomingdale soils in depressions
• Small areas of Rockdell soils along streams and drainageways
• Soils that are ponded for brief periods

Typical Profile

Surface layer:
0 to 9 inches—dark yellowish brown, friable loam
Subsurface layer:
9 to 15 inches—dark yellowish brown, friable loam with yellowish brown mottles
Subsoil:
15 to 30 inches—yellowish brown, friable clay loam
30 to 42 inches—yellowish brown, friable but brittle gravelly clay with strong brown and light gray mottles
42 to 48 inches—brownish yellow, friable clay with yellowish red and light brownish gray mottles
48 to 59 inches—strong brown, friable clay loam with light yellowish brown and light brownish gray mottles
59 to 62 inches—strong brown, firm gravelly clay

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate in the upper part, moderately slow in the lower part
Available water capacity: Moderate
Seasonal high water table: Between depths of 24 and 36 inches
Flooding: None
Soil reaction: Very strongly acid to moderately acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Suited
Management considerations:
• The main management concerns in areas used for cultivated crops are the moderately deep root zone, the moderate available water capacity, and the wetness.
• The wetness delays planting and harvesting in some years.
• Crop species that have a short growing season and can tolerate the wetness should be selected for planting.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• Terraces, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and hay

Suitability: Well suited

Management considerations:
• Few limitations affect the management of pasture and hayland.
• The growth of some forage species is limited by the moderately deep root zone and the moderate available water capacity.
• Deferment of grazing when the soil is wet minimizes compaction and damage to the stand and helps to prevent excessive runoff.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
• The potential for openland and woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Suited
Management considerations:
• The main limitations affecting urban uses are the moderately slow permeability, the clayey subsoil, low strength, and the shrink-swell potential.
• The moderately slow permeability and the clayey subsoil are limitations affecting some sanitary facilities and building site development.
• Low strength may be a problem on sites for local roads and streets or when the soil is used as a source of roadfill.
• The shrink-swell potential in the subsoil may be a problem when footers and basements are constructed.
• Special measures are needed to help overcome subsurface drainage problems.
• This soil is best suited to dwellings without basements.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 2e

TaC—Tasso loam, 5 to 12 percent slopes

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Footslopes and stream terraces
Size of areas: 5 to 60 acres
Major land use: Pasture, hay, or woodland

Composition

Tasso soil and similar components: 85 to 95 percent
Contrasting components: 5 to 15 percent

Minor Components

Similar components:
• Soils that have a higher content of rock fragments than the Tasso soil
• Intermingled areas of Etowah and Shady soils
• Scattered areas of Bellamy soils
Contrasting components:
• Small areas of somewhat poorly drained soils
• Hamblen and Rockdell soils along streams and in drainageways

Typical Profile

Surface layer:
0 to 9 inches—dark yellowish brown, friable loam

Subsurface layer:
9 to 15 inches—dark yellowish brown, friable loam with yellowish brown mottles
Subsoil:
15 to 30 inches—yellowish brown, friable clay loam
30 to 42 inches—yellowish brown, friable but brittle gravelly clay with light gray mottles
42 to 48 inches—brownish yellow, friable clay with light brownish gray mottles
48 to 59 inches—strong brown, friable clay loam with light yellowish brown and light brownish gray mottles
59 to 62 inches—strong brown, firm gravelly clay

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate in the upper part, moderately slow in the lower part
Available water capacity: Moderate
Seasonal high water table: Between depths of 24 and 36 inches
Flooding: None
Soil reaction: Very strongly acid to moderately acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Suited
Management considerations:
• The main management concerns in areas used for cultivated crops are the hazard of erosion, the moderately deep root zone, the moderate available water capacity, and the wetness.
• The wetness delays planting and harvesting in some years.
• Crop species that have a short growing season and can tolerate the wetness should be selected for planting.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• A crop rotation that includes grasses and legumes helps to control erosion.
• Terraces, diversions, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and hay

Suitability: Suited
Management considerations:
• Few limitations affect the management of pasture and hayland.
• The growth of some forage species is limited by the moderately deep root zone and the moderate available water capacity.
• Deferment of grazing when the soil is wet minimizes compaction and damage to the stand and helps to prevent excessive runoff.
• The steepness of slope may be a limitation affecting hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
• The potential for openland and woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Poorly suited

Management considerations:
- The main limitations affecting urban uses are the moderately slow permeability, the clayey subsoil, low strength, the shrink-swell potential, and the steepness of slope.
- The moderately slow permeability and the clayey subsoil are limitations affecting some sanitary facilities and building site development.
- Low strength may be a problem on sites for local roads and streets or when the soil is used as a source of roadfill.
- The shrink-swell potential in the subsoil may be a problem when footers and basements are constructed.
- The steepness of slope is a limitation affecting some urban uses.
- Special measures are needed to help overcome subsurface drainage problems.
- This soil is best suited to dwellings without basements.
- Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 3e

TeC—Tellico loam, 5 to 12 percent slopes

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Ridge crests
Size of areas: 5 to 170 acres
Major land use: Hay, pasture, or woodland

Composition

Tellico soil and similar components: 85 to 95 percent
Contrasting components: 5 to 15 percent

Minor Components

Similar components:
- Soils that do not have dark red colors throughout
- Intermingled areas of Needmore and Corryton soils

Contrasting components:
- Scattered areas of Steekee, Townley, Coile, and Apison soils

Typical Profile

Surface layer:
0 to 4 inches—dark reddish brown, very friable loam
Subsoil:
4 to 11 inches—dark red, friable clay loam
11 to 25 inches—dark red, friable clay
25 to 70 inches—dark red, friable clay loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Suited
Management considerations:
- The main management concern in areas used for cultivated crops is the hazard of erosion.
- Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
- A crop rotation helps to control erosion in most areas.
- Terraces, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and hay

Suitability: Well suited
Management considerations:
- Few limitations affect the management of pasture and hayland.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Well suited
Management considerations:
- Few limitations affect forest management.
- Plant competition from undesirable species may be a problem when establishing a new forest crop.
- Proper site preparation helps to control the plant competition that may occur immediately after planting.
- Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited

Management considerations:
- The potential for openland and woodland wildlife habitat is good.
- Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
- Field borders and filter strips provide good wildlife habitat.
- Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
- Buffer zones along streams provide benefits to wildlife as well as erosion control.
- Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
- Food plots or areas of green browse can be established along logging roads and trails.
- The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
- Den trees should not be harvested.
- Brush piles or other nesting sites are needed.

Urban uses

Suitability: Suited
Management considerations:
- The main limitations affecting urban uses are the moderate permeability, the clayey subsoil, low strength, and the shrink-swell potential.
- The moderate permeability and the clayey subsoil are limitations affecting some sanitary facilities and building site development.
- Low strength may be a problem on sites for local roads and streets or when the soil is used as a source of roadfill.
- The shrink-swell potential in the subsoil may be a problem when footers and basements are constructed.
- Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 3e

TeE3—Tellico loam, 5 to 35 percent slopes, gullied

Setting

Physiographic area: Southern Appalachian Ridges and Valleys (in the Red Hills area)
Landscape position: Ridge crests, backslopes, and side slopes
Size of areas: 5 to 60 acres
Major land use: Pasture or woodland

Composition

Tellico soil and similar components: 80 to 95 percent
Contrasting components: 5 to 20 percent

Minor Components

Similar components:
- Soils that do not have dark red colors throughout the subsoil
- Intermingled areas of Corryton soils

Contrasting components:
- Soils that have less clay in the subsoil than the Tellico soil
- Scattered areas of Townley, Needmore, and Red Hills, and Steekee soils
- Isolated areas of Rock outcrop

Typical Profile

Surface layer:
0 to 4 inches—dark reddish brown, very friable loam
Subsoil:
4 to 11 inches—dark red, friable clay loam
11 to 25 inches—dark red, friable clay
25 to 70 inches—dark red, friable clay loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to hard bedrock: More than 60 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
- The main management concerns in areas used for cultivated crops are the hazard of erosion and the gullies.
- Intensive erosion-control measures are needed if this soil is used for cultivated crops.

Pasture and hay

Suitability: Poorly suited
Management considerations:
- The main limitations are the steepness of slope and the gullies.
- The gullied areas and the steepness of slope increase the difficulty of properly managing pastures and limit the use of this soil as hayland.

• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, and plant competition.
• The hazard of erosion can be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water breaks and culverts.
• Temporary roads that are no longer used can be closed and protected by seeding and by installing water breaks.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation only when large, specialized equipment is used.
• Slopes generally are broken up enough or are short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs may be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Suited
Management considerations:
• The potential for openland wildlife habitat is fair, and the potential for woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Poorly suited
Management considerations:
• The main limitations affecting urban uses are the moderate permeability, the clayey subsoil, low strength, the shrink-swell potential, and the steepness of slope.
• The moderate permeability and the clayey subsoil are limitations affecting some sanitary facilities and building site development.
• Low strength may be a problem on sites for local roads and streets or when the soil is used as a source of roadfill.
• The shrink-swell potential in the subsoil may be a problem when footers and basements are constructed.
• The steepness of slope is a limitation affecting most urban uses.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 6e

ThF—Tellico-Red Hills complex, 25 to 65 percent slopes, rocky

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Side slopes, backslopes, and shoulder slopes
Size of areas: 5 to 185 acres
Major land use: Woodland

Composition

Tellico soil and similar components: 70 to 90 percent
Red Hills soil and similar components: 10 to 30 percent
Rock outcrop: 0.1 to 2 percent
Contrasting components: 5 to 15 percent

Minor Components

Similar components:
• Soils that have less clay in the subsoil than the Tellico soil
• Tellico soils that have a surface layer of clay loam or sandy loam
• Scattered areas of soils that are slightly acid or neutral in the subsoil
Contrasting components:
• Scattered areas of Steekee soils

Typical Profile

Tellico

Surface layer:
0 to 4 inches—dark reddish brown, very friable loam
Subsoil:
4 to 11 inches—dark red, friable clay loam
11 to 25 inches—dark red, friable clay
25 to 70 inches—dark red, friable clay loam

Red Hills

Surface layer:
0 to 4 inches—dark reddish brown, very friable sandy loam
Subsoil:
4 to 16 inches—dark reddish brown, friable cobbly sandy loam
16 to 26 inches—dark reddish brown, friable very cobbly loam
Soft bedrock:
26 to 32 inches—dark reddish brown, soft sandstone

Soil Properties and Qualities

Tellico

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to hard bedrock: More than 60 inches
Shrink-swell potential: Moderate

Red Hills

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid to moderately acid
Depth to soft bedrock: 20 to 40 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• The main management concerns in areas used for cultivated crops are the hazard of erosion and the steepness of slope.
• The Rock outcrop is an additional limitation.

Pasture and hay

Suitability: Unsuited
Management considerations:
• The main limitations are the steepness of slope and the Rock outcrop.
• The steepness of slope increases the difficulty of properly managing pastures and limits the use of these soils as hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, and plant competition.
• The hazard of erosion can be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water breaks and culverts.
• Temporary roads that are no longer used can be closed and protected by seeding and by installing water breaks.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation only when large, specialized equipment is used.
• Slopes generally are broken up enough or are short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.

• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Suited
Management considerations:
• The potential for woodland wildlife habitat is good in areas of the Tellico soil and fair in areas of the Red Hills soil.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Poorly suited
Management considerations:
• The main limitations affecting urban uses in areas of the Tellico soil are the moderate permeability, the clayey subsoil, low strength, and the shrink-swell potential.
• The depth to bedrock is the main limitation affecting urban uses in areas of the Red Hills soil.
• The steepness of slope is an additional limitation affecting most urban uses in areas of the Tellico and Red Hills soils.
• The moderate permeability in the subsoil, the clayey subsoil, and the moderate shrink-swell potential are limitations affecting some sanitary facilities and building site development in areas of the Tellico soil.
• The low strength of the Tellico soil may be a problem on sites for local roads and streets or when the soil is used as a source of roadfill.
• The depth to bedrock is a limitation affecting some building site development in areas of the Red Hills soil.
• A suitable alternative site should be selected.

Interpretive Group

Land capability classification: 7e

TkD—Tellico-Steekee complex, 12 to 25 percent slopes

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Narrow ridge crests, backslopes, and shoulder slopes
Size of areas: 5 to 175 acres
Major land use: Woodland

Composition

Tellico soil and similar components: 40 to 70 percent
Steekee soil and similar components: 30 to 60 percent
Contrasting components: 5 to 10 percent

Minor Components

Similar components:
• Soils that have bedrock at a depth of 40 to 60 inches
• Soils that have less clay in the subsoil than the Tellico and Steekee soils
• Alcoa soils
• Soils that are slightly acid or neutral in the subsoil
Contrasting components:
• Rock outcrop near slope breaks
• Scattered areas of soils that are less than 20 inches deep over bedrock

Typical Profile

Tellico

Surface layer:
0 to 4 inches—dark reddish brown, very friable loam
Subsoil:
4 to 11 inches—dark red, friable clay loam
11 to 25 inches—dark red, friable clay
25 to 70 inches—dark red, friable clay loam

Steekee

Surface layer:
0 to 4 inches—dark reddish brown, very friable sandy loam
Subsoil:
4 to 10 inches—reddish brown, friable gravelly loam and gravelly sandy clay loam
Substratum:
10 to 14 inches—intermingled reddish brown, friable very gravelly sandy clay loam and soft quartzose sandstone
Bedrock:
14 to 60 inches—interbedded light olive brown, soft sandstone and reddish brown, soft shale

Soil Properties and Qualities

Tellico

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to hard bedrock: More than 60 inches
Shrink-swell potential: Moderate

Steekee

Drainage class: Well drained
Permeability: Moderate or moderately rapid
Available water capacity: Very low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid to moderately acid
Depth to soft bedrock: 12 to 20 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Poorly suited
Management considerations:
• The main management concern in areas used for cultivated crops is the hazard of erosion.
• The depth to bedrock and the very low available water capacity are additional limitations in areas of the Steekee soil.

Pasture and hay

Suitability: Suited
Management considerations:
• The main limitation is the low available water capacity of the Steekee soil.
• The steepness of slope increases the difficulty of properly managing pastures and limits the use of these soils as hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, and plant competition.
• The hazard of windthrow and seedling mortality are additional limitations in areas of the Steekee soil.
• The hazard of erosion can be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water breaks and culverts.
• Temporary roads that are no longer used can be closed and protected by seeding and by installing water breaks.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation only when large, specialized equipment is used.
• Slopes generally are short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs may be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• Windthrow is a hazard in some areas because of the shallow root zone in the Steekee soil.
• The windthrow hazard can be reduced by applying a carefully regulated thinning and salvage program.
• When establishing a new forest crop, the seedling mortality rate may be high because of the gravelly surface layer.
• Aspect and the content of gravel in the surface layer should be carefully considered when planting sites are selected for seedlings.
• Reinforcement plantings can be made until the desired stand is attained.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Suited
Management considerations:
• The potential for openland wildlife habitat is fair and the potential for woodland wildlife habitat is good in areas of the Tellico soil.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.

• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Poorly suited
Management considerations:
• The main limitations affecting urban uses in areas of the Tellico soil are the moderate permeability, the clayey subsoil, and the shrink-swell potential.
• The depth to bedrock is the main limitation affecting urban uses in areas of the Steekee soil.
• The steepness of slope is a limitation affecting most urban uses in areas of the Tellico and Steekee soils.
• The moderate permeability and the clayey subsoil are limitations affecting some sanitary facilities and building site development in areas of the Tellico soil.
• The shrink-swell potential in the subsoil may be a problem when footers and basements are constructed in areas of the Tellico soil.
• The depth to bedrock is a limitation affecting some building site development in areas of the Steekee soil.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: Tellico—4e; Steekee—6e

To—Toccoa loam, occasionally flooded

Setting

Physiographic area: Southern Appalachian Ridges and Valleys (in the Hiwassee River valley)
Landscape position: Flood plains
Size of areas: 5 to 45 acres
Slope range: 0 to 3 percent
Major land use: Pasture, hay, or cropland

Composition

Toccoa soil and similar components: 85 to 100 percent
Contrasting components: 0 to 15 percent

Minor Components

Similar components:
• Soils that have a surface layer of sandy loam
Contrasting components:
• Soils that have a sandy subsoil and are near the banks of the Hiwassee River
• Small areas of moderately well drained or somewhat poorly drained soils

Typical Profile

Surface layer:
0 to 10 inches—dark yellowish brown, very friable loam
Substratum:
10 to 26 inches—dark yellowish brown, very friable loam
Buried surface layer:
26 to 34 inches—dark brown, friable loam
Buried subsoil:
34 to 48 inches—dark yellowish brown, friable loam
Buried substratum:
48 to 60 inches—dark yellowish brown, friable loam with very dark grayish brown mottles

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Moderate
Seasonal high water table: Between depths of 48 and 72 inches
Flooding: Occasional
Soil reaction: Strongly acid to slightly acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Suited
Management considerations:
• Few limitations affect cropland.
• Some crops may be damaged by the flooding in winter and early spring.
• Conservation tillage, crop residue management, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• Grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and hay

Suitability: Well suited
Management considerations:
• Few limitations affect the management of pasture and hayland.
• Deferment of grazing when the soil is wet minimizes compaction and damage to the stand and helps to prevent excessive runoff.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
• The potential for openland and woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Poorly suited
Management considerations:
• The main limitation affecting urban uses is the flooding.
• The flooding is difficult to overcome.
• A suitable alternative site should be selected.

Interpretive Group

Land capability classification: 2w

TwB2—Townley-Coile complex, 2 to 5 percent slopes, eroded

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Broad ridge crests
Size of areas: 5 to 125 acres
Major land use: Pasture and hay; a few areas used as cropland or woodland

Composition

Townley soil and similar components: 65 to 85 percent
Coile soil and similar components: 15 to 35 percent
Contrasting components: 5 to 10 percent

Minor Components

Similar components:
• Soils that have a surface layer of silty clay loam or channery silt loam
• Scattered areas of Apison soils
• Severely eroded soils
Contrasting components:
• Intermingled areas of Corryton soils

Typical Profile

Townley

Surface layer:
0 to 5 inches—strong brown, friable silt loam
Subsoil:
5 to 24 inches—yellowish red, friable clay with brownish yellow mottles
Substratum:
24 to 28 inches—yellowish red, firm silty clay loam with brownish yellow and strong brown mottles
Soft bedrock:
28 to 44 inches—yellowish red, firm silty clay loam and light olive brown sandy shale

Coile

Surface layer:
0 to 3 inches—dark brown, very friable silt loam

Subsoil:
3 to 10 inches—dark yellowish brown and strong brown, friable very channery silt loam and channery clay
Substratum:
10 to 18 inches—strong brown, friable channery clay with light brownish yellow mottles
Soft bedrock:
18 to 24 inches—light olive brown and light yellowish brown, tilted, acid shale

Soil Properties and Qualities

Townley

Drainage class: Well drained
Permeability: Slow
Available water capacity: Low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to soft bedrock: 20 to 40 inches
Shrink-swell potential: Moderate

Coile

Drainage class: Well drained
Permeability: Moderately slow or moderate
Available water capacity: Very low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid to moderately acid
Depth to soft bedrock: 9 to 20 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Poorly suited
Management considerations:
• The main management concerns in areas used for cultivated crops are the shallow root zone and the very low available water capacity of the Coile soil and the moderately deep root zone and the low available water capacity of the Townley soil.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• Field borders and filter strips help to control erosion and runoff.

Pasture and hay

Suitability: Suited
Management considerations:
• The main limitations are the low available water capacity of the Townley soil and the very low available water capacity of the Coile soil.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are plant competition in areas of the Townley soil and seedling mortality and the hazard of windthrow in areas of the Coile soil.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• When establishing a new forest crop, the seedling mortality rate may be high because of the low or very low available water capacity.
• Aspect, the depth to bedrock, and the stoniness should be carefully considered when planting sites are selected for seedlings.
• Reinforcement plantings can be made until the desired stand is attained.
• Windthrow is a hazard in some areas because of the shallow root zone in the Coile soil.
• The windthrow hazard can be reduced by applying a carefully regulated thinning and salvage program.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
• The potential for openland and woodland wildlife habitat is good in areas of the Townley soil and fair in areas of the Coile soil.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.

• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Poorly suited
Management considerations:
• The main limitations affecting urban uses are the restricted permeability, the clayey subsoil, low strength, the shrink-swell potential, and the depth to bedrock.
• The slow permeability in the subsoil, the clayey subsoil, and the shrink-swell potential of the Townley soil are limitations affecting some sanitary facilities and building site development.
• The moderate permeability of the Coile soil may be a limitation affecting some sanitary facilities.
• Low strength may be a problem on sites for local roads and streets or when the soils are used as a source of roadfill.
• The depth to bedrock is a limitation affecting some building site development.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: Townley—3e; Coile—4e

UDC—Udorthents-Urban land complex, 2 to 12 percent slopes

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Uplands
Size of areas: 5 to 5,100 acres
Major land use: Urban development

Composition

Udorthents and similar components: 40 to 50 percent
Urban land and similar components: 45 to 55 percent
Contrasting components: 5 to 15 percent

Minor Components

Similar components:
• Scattered areas of Bodine, Dewey, Fullerton, Waynesboro, Coile, and Apison soils

Contrasting components:
• Soils that are along drainageways and streams and are subject to occasional flooding

Typical Profile

Udorthents

A typical profile is not given because Udorthents vary greatly.

Urban land

The Urban land mostly consists of areas where the surface is covered by roads, streets, parking lots, commercial buildings, houses, and other types of impervious ground cover. In places the natural drainage pattern has been altered by a system of ditches and storm drains. The underlying soil material is not observable. A typical profile of Urban land is not given.

Soil Properties and Qualities

Udorthents

Drainage class: Well drained to excessively drained
Permeability: Slow or very slow
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 60 inches
Flooding: None
Soil reaction: Extremely acid to neutral
Depth to bedrock: 40 to more than 72 inches
Shrink-swell potential: Low to high

Use and Management

Urban uses

Suitability: Suited
Management considerations:
• The hazard of erosion is a major management concern during construction.
• A well designed erosion-control plan is needed.
• Erosion barriers, diversions, and rocklined or vegetated waterways are important management practices.
• Timely revegetation of bare areas should be a priority.
• Plant species that can tolerate a wide range of soil conditions grow best.
• Providing a good seedbed, maintaining the proper fertility level, and mulching seeded areas help to establish a protective cover of vegetation.
• Intensive revegetation measures, such as hydroseeding and sodding, may be needed in problem areas.

• A layer of concrete, asphalt, coarse gravel, gabion stone, or riprap helps to control erosion in areas where vegetation cannot be established.
• The load-bearing strength, the shrink-swell potential, surface runoff, and storm drainage management are concerns affecting urban development.
• Differential settling is a management concern in some areas of fill material used as sites for dwellings, small commercial buildings, or local roads and streets.
• Proper compaction of fill material minimizes differential settling.
• The steepness of slope is the major limitation on sites for dwellings and small commercial buildings.
• Land shaping helps to overcome the slope on sites for dwellings and small commercial buildings.
• Designing buildings and structures so that they conform to the natural slope of the land reduces the need for land shaping.
• The shrink-swell potential of the Udorthents should be considered when footers and basements are designed.
• This map unit commonly is not suitable as a site for onsite subsurface sewage disposal.
• In most places access to a municipal sewage disposal system will be needed.
• The stoniness may be a limitation in areas used for lawns or golf fairways and when the soils are landscaped.
• Adding topsoil and maintaining the proper fertility level help to establish ground cover.
• The low strength and the steepness of slope are limitations on sites for local roads and streets.
• Adding gravel or other suitable subgrade material helps to prevent the road damage caused by low strength.
• Designing roads so that they follow the natural contour and land shaping help to overcome the slope.
• The shrink-swell potential in the subsoil material should be considered when local roads are planned and designed.
• Onsite investigation is needed to determine the limitations affecting any proposed use.

Interpretive Group

Land capability classification: None assigned

UnE—Unicoi gravelly sandy loam, 10 to 35 percent slopes, very rocky

Setting

Physiographic area: Blue Ridge
Landscape position: Ridge crests and the upper side slopes
Size of areas: 10 to several hundred acres
Major land use: Woodland (fig. 8)

Composition

Unicoi soil and similar components: 85 to 95 percent
Rock outcrop: 2 to 10 percent
Contrasting components: 5 to 15 percent

Minor Components

Similar components:
• Soils that have fewer rock fragments than the Unicoi soil
• Soils that are 20 to 40 inches deep over bedrock
Contrasting components:
• Scattered areas of Lostcove soils in drainageways

Typical Profile

Surface layer:
0 to 5 inches—brown, very friable gravelly sandy loam
Subsoil:
5 to 15 inches—brownish yellow, friable very gravelly sandy loam
Bedrock:
15 to 20 inches—hard, fractured, arkosic sandstone

Soil Properties and Qualities

Drainage class: Excessively drained
Permeability: Moderately rapid
Available water capacity: Very low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Extremely acid to strongly acid
Depth to hard bedrock: 7 to 20 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• The main management concerns in areas used for cultivated crops are the hazard of erosion, the shallow root zone, the depth to bedrock, the low available water capacity, the stoniness, and the Rock outcrop.

Pasture and hay

Suitability: Unsuited
Management considerations:
• The main management concerns are the low available water capacity, the Rock outcrop, the stoniness, and the depth to bedrock.
• The steepness of slope, the Rock outcrop, and the large stones increase the difficulty of properly

Figure 8.—An area of Unicoi gravelly sandy loam, 10 to 35 percent slopes, very rocky. The Rock outcrop makes up about 2 to 10 percent of the map unit. The map unit is severely limited for most uses because of the Rock outcrop and the steepness of slope.

managing pastures and limits the use of this soil as hayland.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, seedling mortality, the equipment limitation, and the hazard of windthrow.
• The hazard of erosion can be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water breaks and culverts.
• Temporary roads that are no longer used can be closed and protected by seeding and by installing water breaks.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation only when large, specialized equipment is used.
• Slopes generally are short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have

smoother slopes and seedlings can be planted by hand.
• When establishing a new forest crop, the seedling mortality rate may be high because of the shallow rooting depth, the low available water capacity, and the Rock outcrop.
• Aspect and the depth to bedrock should be carefully considered when planting sites are selected for seedlings.
• Reinforcement plantings can be made until the desired stand is attained.
• Windthrow is a hazard in some areas because of the shallow root zone.
• The windthrow hazard can be reduced by applying a carefully regulated thinning and salvage program.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Poorly suited
Management considerations:
• The potential for openland and woodland wildlife habitat is very poor.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Unsuited
Management considerations:
• The main limitations affecting urban uses are the depth to bedrock, the stoniness, and the Rock outcrop.
• A suitable alternative site should be selected.

Interpretive Group

Land capability classification: 7s

UoG—Unicoi-Rock outcrop complex, 50 to 120 percent slopes

Setting

Physiographic area: Blue Ridge
Landscape position: Steep side slopes
Size of areas: 10 to 370 acres
Major land use: Woodland

Composition

Unicoi soil and similar components: 70 to 90 percent
Rock outcrop and similar components: 10 to 30 percent
Contrasting components: 5 to 10 percent

Minor Components

Similar components:
• Intermingled areas of Harmiller and McCamy soils
Contrasting components:
• Scattered areas of Cataska soils

Typical Profile

Unicoi

Surface layer:
0 to 5 inches—brown, very friable gravelly sandy loam
Subsoil:
5 to 15 inches—brownish yellow, friable very gravelly sandy loam
Bedrock:
15 to 20 inches—hard, fractured, arkosic sandstone

Rock outcrop

The Rock outcrop occurs as areas of exposed arkosic sandstone or metasandstone or in areas where less than 2 or 3 inches of soil material overlies the bedrock. Most outcrops protrude from a few inches above the surface to nearly vertical bluffs in some areas. The Rock outcrop supports little or no vegetation.

Soil Properties and Qualities

Unicoi

Drainage class: Excessively drained
Permeability: Moderately rapid
Available water capacity: Very low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Extremely acid to strongly acid
Depth to bedrock: 7 to 20 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• The main management concerns in areas used for cultivated crops are the hazard of erosion, the shallow root zone, the depth to bedrock, the low available water capacity, the Rock outcrop, and the steepness of slope.

Pasture and hay

Suitability: Unsuited
Management considerations:
• The main management concerns are the low available water capacity, the shallow root zone, the depth to bedrock, the Rock outcrop, and the steepness of slope.

Woodland

Suitability: Poorly suited
Management considerations:
• The main management concerns in areas of the Unicoi soil are the hazard of erosion, the equipment limitation, seedling mortality, and the hazard of windthrow.
• The hazard of erosion can be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water breaks and culverts.
• Temporary roads that are no longer used can be closed and protected by seeding and by installing water breaks.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation only when large, specialized equipment is used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• When establishing a new forest crop, the seedling mortality rate may be high because of the shallow rooting depth, the low available water capacity, and the gravelly surface layer
• Aspect and the depth to bedrock should be carefully considered when planting sites are selected for seedlings.
• Reinforcement plantings can be made until the desired stand is attained.
• Windthrow is a hazard in some areas because of the shallow root zone.
• The windthrow hazard can be reduced by applying a carefully regulated thinning and salvage program.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Poorly suited
Management considerations:
• The potential for woodland and openland wildlife habitat is very poor.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Unsuited
Management considerations:
• The main limitations affecting urban uses are the Rock outcrop, the depth to bedrock, and the steepness of slope.
• A suitable alternative site should be selected.

Interpretive Group

Land capability classification: Unicoi—7s; Rock outcrop—8s

URC—Urban land, 2 to 12 percent slopes

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Uplands
Size of areas: 10 to several hundred acres
Major land use: Urban development

Composition

Urban land and similar components: 90 to 95 percent
Contrasting components: 5 to 10 percent

Minor Components

Similar components:
• Scattered areas of Udorthents
Contrasting components:
• Fullerton, Waynesboro, and Corryton soils

Typical Profile

The Urban land mostly consists of areas where the surface is covered by roads, streets, parking lots, commercial buildings, houses, and other types of impervious ground cover. In places the natural drainage pattern has been altered by a system of ditches and storm drains. The underlying soil material is not observable. A typical profile of Urban land is not given.

Use and Management

Urban uses

Suitability: Well suited
Management considerations:
• The hazard of erosion is a major management concern during construction.
• A well designed erosion-control plan is needed.
• Timely revegetation of bare areas should be a priority.
• Plant species that can tolerate a wide range of soil conditions grow best.
• Providing a good seedbed, maintaining the proper fertility level, and mulching seeded areas help to establish a protective cover of vegetation.
• Intensive revegetation measures, such as hydroseeding and sodding, may be needed in problem areas.
• A layer of concrete, asphalt, coarse gravel, gabion stone, or riprap helps to control erosion in areas where vegetation cannot be established.
• Differential settling is a management concern in areas of fill material.
• The load-bearing strength, the shrink-swell potential, surface runoff, and storm drainage management are additional concerns affecting urban development.
• Onsite investigation is needed to determine the limitations affecting any proposed use.

Interpretive Group

Land capability classification: None assigned

UU—Urban land-Udorthents complex, rarely flooded

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Flood plains and drainageways
Slope range: 0 to 3 percent
Size of areas: 10 to 185 acres
Major land use: Urban development

Composition

Urban land and similar components: 45 to 65 percent
Udorthents and similar components: 35 to 55 percent
Contrasting components: 5 to 15 percent

Minor Components

Similar components:
• Scattered areas of Hamblen, Steadman, Bloomingdale, and Rockdell soils
Contrasting components:
• Soils that are on adjacent uplands and stream terraces and are not subject to flooding

Typical Profile

Urban land

The Urban land mostly consists of areas where the surface is covered by roads, streets, parking lots, commercial buildings, houses, and other types of impervious ground cover. In places the natural drainage pattern has been altered by a system of ditches and storm drains. The underlying soil material is not observable. A typical profile of Urban land is not given.

Udorthents

A typical profile is not given because Udorthents vary greatly.

Soil Properties and Qualities

Udorthents

Drainage class: Poorly drained to well drained
Permeability: Moderate to very slow
Available water capacity: Moderate
Seasonal high water table: At a depth of 12 to more than 60 inches
Flooding: Rare
Soil reaction: Extremely acid to neutral
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low to high

Use and Management

Urban uses

Suitability: Poorly suited
Management considerations:
• Land uses in areas of this map unit have already being dictated.
• The flooding is a major management concern in most areas.
• The load-bearing strength, the shrink-swell potential, surface runoff, and storm drainage management are additional concerns affecting urban development.

- The guidelines and restrictions for building dwellings and small commercial buildings on flood plains should be followed.
- The soil material varies widely in areas of the Udorthents.
- This map unit commonly is not suitable as a site for onsite subsurface sewage disposal
- In most places access to a municipal sewage disposal system will be needed.
- Providing a good seedbed, maintaining the proper fertility level, and mulching seeded areas help to establish ground cover.
- Differential settling is a management concern in some areas of fill material used as sites for small commercial buildings or for local roads and streets.
- Proper compaction of fill material minimizes differential settling.
- Low strength is a limitation on sites for local roads and streets.
- Adding gravel or other suitable subgrade material helps to prevent the road damage caused by low strength.
- Onsite investigation is needed to determine the limitations affecting any proposed use.

Interpretive Group

Land capability classification: None assigned

W—Water

This map unit consists of areas inundated with water for most of the year. It generally includes rivers, lakes, and ponds. The Hiwassee River and the tailwaters of Chickamauga Lake are the largest areas of water. No interpretations are given for this map unit.

WaB2—Waynesboro clay loam, 2 to 5 percent slopes, eroded

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Broad ridge crests and terraces
Size of areas: 5 to 160 acres
Major land use: Hay, pasture, or cropland

Composition

Waynesboro soil and similar components: 85 to 95 percent
Contrasting components: 5 to 15 percent

Minor Components

Similar components:
- Scattered areas of Decatur, Dewey, and Fullerton soils on ridge crests and side slopes
- Scattered areas of Corryton and Etowah soils in landscape positions similar to those of the Waynesboro soil
- Waynesboro soils that have a surface layer of silt loam or loam

Contrasting components:
- Narrow strips of Hamblen and Pettyjon soils along drainageways and in depressions
- Isolated areas of Bradyville soils
- Small areas of Rock outcrop
- Intermingled areas of Coile and Townley soils

Typical Profile

Surface layer:
0 to 7 inches—reddish brown, friable clay loam
Subsoil:
7 to 28 inches—yellowish red, friable clay
28 to 79 inches—red, friable clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid to moderately acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Well suited
Management considerations:
- Few limitations affect cropland.
- Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
- Terraces, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and hay

Suitability: Well suited
Management considerations:
- Few limitations affect the management of pasture and hayland.

• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
• The potential for openland and woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Suited
Management considerations:
• Few limitations affect urban uses.
• The moderate permeability and the clayey subsoil are limitations affecting some sanitary facilities and building site development.
• Low strength may be a problem on sites for local roads and streets or when the soil is used as a source of roadfill.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 2e

WaC2—Waynesboro clay loam, 5 to 12 percent slopes, eroded

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Broad ridge crests and side slopes
Size of areas: 5 to 150 acres
Major land use: Hay, pasture, or cropland

Composition

Waynesboro soil and similar components: 85 to 95 percent
Contrasting components: 10 to 15 percent

Minor Components

Similar components:
• Scattered areas of Decatur, Dewey, and Fullerton soils on ridge crests and side slopes
• Etowah soils in landscape positions similar to those of the Waynesboro soil
• Waynesboro soils that have a surface layer of loam or silt loam
Contrasting components:
• Narrow strips of Hamblen and Pettyjon soils along drainageways and in depressions
• Isolated areas of Bradyville soils
• Small areas of Rock outcrop

Typical Profile

Surface layer:
0 to 7 inches—reddish brown, friable clay loam
Subsoil:
7 to 28 inches—yellowish red, friable clay
28 to 79 inches—red, friable clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid to moderately acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Suited
Management considerations:
• Few limitations affect cropland.
• Erosion is a moderate hazard if a conventional tillage system is used.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• A crop rotation that includes grasses and legumes helps to control erosion.
• Terraces, diversions, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and hay

Suitability: Well suited
Management considerations:
• Few limitations affect the management of pasture and hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
• The potential for openland and woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Suited
Management considerations:
• The main limitations are the moderate permeability, the clayey subsoil, low strength, and the steepness of slope.
• The moderate permeability and the clayey subsoil are limitations affecting some sanitary facilities and building site development.
• Low strength may be a problem on sites for local roads and streets or when the soil is used as a source of roadfill.
• The steepness of slope is a limitation affecting most urban uses.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 3e

WbB2—Waynesboro silt loam, 2 to 5 percent slopes, eroded

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Broad ridge crests and terraces
Size of areas: 5 to 55 acres
Major land use: Hay, pasture, or cropland

Composition

Waynesboro soil and similar components: 85 to 95 percent
Contrasting components: 5 to 15 percent

Minor Components

Similar components:
• Intermingled areas of Decatur, Dewey, and Fullerton soils on ridge crests and terraces

• Etowah soils in landscape positions similar to those of the Waynesboro soil
• Waynesboro soils that have a surface layer of loam or clay loam

Contrasting components:
• Narrow strips of Hamblen and Pettyjon soils along drainageways and in depressions
• Isolated areas of Rock outcrop intermingled with soils that have limestone bedrock at a depth of 20 to 40 inches
• Scattered areas of Coile and Townley soils

Typical Profile

Surface layer:
0 to 8 inches—reddish brown, very friable silt loam
Subsoil:
8 to 14 inches—yellowish red, friable clay
14 to 60 inches—red, friable clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid to moderately acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Well suited
Management considerations:
• Few limitations affect cropland.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• Terraces, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and hay

Suitability: Well suited
Management considerations:
• Few limitations affect the management of pasture and hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
• The potential for openland and woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Suited
Management considerations:
• Few limitations affect urban uses.
• The moderate permeability and the clayey subsoil are limitations affecting some sanitary facilities and building site development.
• Low strength may be a problem on sites for local roads and streets or when the soil is used as a source of roadfill.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 2e

WbC2—Waynesboro silt loam, 5 to 12 percent slopes, eroded

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Broad ridge crests, terraces, and side slopes
Size of areas: 5 to 50 acres
Major land use: Hay, pasture, or cropland

Composition

Waynesboro soil and similar components: 85 to 90 percent
Contrasting components: 10 to 15 percent

Minor Components

Similar components:
• Scattered areas of Decatur, Dewey, and Fullerton soils on ridge crests, terraces, and side slopes
• Etowah soils in landscape positions similar to those of the Waynesboro soil
• Waynesboro soils that have a surface layer of loam or clay loam
Contrasting components:
• Narrow strips of Hamblen and Pettyjon soils along drainageways and in depressions
• Isolated areas of Bradyville soils
• Small areas of Rock outcrop

Typical Profile

Surface layer:
0 to 8 inches—reddish brown, very friable silt loam
Subsoil:
8 to 14 inches—yellowish red, friable clay
14 to 60 inches—red, friable clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid to moderately acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Suited
Management considerations:
• The main management concern is the hazard of erosion.
• Erosion is a moderate hazard if a conventional tillage system is used.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• A crop rotation that includes grasses and legumes helps to control erosion.
• Terraces, diversions, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and hay

Suitability: Well suited
Management considerations:
• Few limitations affect the management of pasture and hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
• The potential for openland and woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.

• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Suited
Management considerations:
• The main limitations are the moderate permeability, the clayey subsoil, low strength, and the steepness of slope.
• The moderate permeability and the clayey subsoil are limitations affecting some sanitary facilities and building site development.
• Low strength may be a problem on sites for local roads and streets or when the soil is used as a source of roadfill.
• The steepness of slope is a limitation affecting most urban uses.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 3e

WNC—Waynesboro-Urban land complex, 2 to 12 percent slopes

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Broad ridge crests, terraces, and side slopes
Size of areas: 10 to 280 acres
Major land use: Urban areas—homesites, lawns, industrial parks, schools, roads, parking lots, and streets

Composition

Waynesboro soil and similar components: 45 to 55 percent
Urban land and similar components: 45 to 55 percent
Contrasting components: 5 to 10 percent

Minor Components

Similar components:
• Scattered areas of Dewey and Decatur soils
• Etowah soils in landscape positions similar to those of the Waynesboro soil
Contrasting components:
• Narrow strips of Hamblen and Pettyjon soils along drainageways and in depressions
• Isolated areas of Bradyville soils intermingled with areas of Rock outcrop

Typical Profile

Waynesboro

Surface layer:
0 to 8 inches—reddish brown, very friable silt loam
Subsoil:
8 to 14 inches—yellowish red, friable clay
14 to 60 inches—red, friable clay

Urban land

The Urban land mostly consists of areas where the surface is covered by roads, streets, parking lots, commercial buildings, houses, and other types of impervious ground cover. In places the natural drainage pattern has been altered by a system of ditches and storm drains. The underlying soil material is not observable. A typical profile of Urban land is not given.

Soil Properties and Qualities

Waynesboro

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid to moderately acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Urban uses

Suitability: Suited
Management considerations:
• The hazard of erosion is a major management concern during construction.
• A well designed erosion-control plan is needed.
• Erosion barriers, diversions, and rocklined or vegetated waterways are important management practices.
• Timely revegetation of bare areas should be a priority.
• Plant species that can tolerate a wide range of soil conditions grow best.

• Providing a good seedbed, maintaining the proper fertility level, and mulching seeded areas help to establish a protective cover of vegetation.
• Intensive revegetation measures, such as hydroseeding and sodding, may be needed in problem areas.
• A layer of concrete, asphalt, coarse gravel, gabion stone, or riprap helps to control erosion in areas where vegetation cannot be established.
• Differential settling is a management concern in areas of fill material.
• The load-bearing strength, the shrink-swell potential, surface runoff, and storm drainage management are additional concerns affecting urban development.
• The steepness of slope is a moderate limitation on sites for dwellings and small commercial buildings, in areas used for lawns, and when the soil is landscaped.
• Land shaping helps to overcome the slope.
• Designing buildings and structures so that they conform to the natural slope of the land reduces the need for land shaping.
• The steepness of slope and the moderate permeability in the subsoil are moderate limitations on sites for septic tank absorption fields.
• Designing septic tank systems so that they conform to the existing slope and installing specially designed systems help to overcome the slope and the restricted permeability.
• Providing a good seedbed, maintaining the proper fertility level, and mulching seeded areas help to establish ground cover.
• Low strength and the slope are moderate limitations on sites for local roads and streets.
• Adding gravel or other suitable subgrade material helps to prevent the road damage caused by low strength.
• Designing roads so that they follow the natural contour and land shaping help to overcome the slope.
• Onsite investigation is needed to determine the limitations affecting any proposed use.

Interpretive Group

Land capability classification: Waynesboro—3e; Urban land—none assigned

WoB—Wolftever silt loam, 1 to 5 percent slopes, occasionally flooded

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Intermittent drainageways and flood plains
Size of areas: 5 to 80 acres
Major land use: Pasture, hay, or woodland

Composition

Wolftever soil and similar components: 75 to 90 percent
Contrasting components: 10 to 25 percent

Minor Components

Similar components:
• Hamblen, Steadman, and Pettyjon soils along drainageways and in landscape positions similar to those of the Wolftever soil
• Soils that are either moderately acid, slightly acid, or neutral
Contrasting components:
• Small areas of Bloomingdale soils in depressions
• Isolated areas of Apison, Corryton, and Townley soils
• A few areas of Tasso soils
• Intermingled areas of somewhat poorly drained soils that have less clay in the subsoil than the Wolftever soil

Typical Profile

Surface layer:
0 to 8 inches—brown, very friable silt loam
Subsoil:
8 to 16 inches—strong brown, very friable silt loam
16 to 30 inches—brownish yellow, firm silty clay with light gray mottles
30 to 60 inches—olive yellow, firm silty clay with light greenish gray mottles
Substratum:
60 to 72 inches—pale yellow, firm silty clay with light greenish gray mottles

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderately slow
Available water capacity: High
Seasonal high water table: Between depths of 25 and 41 inches
Flooding: Occasional in the lower lying areas
Soil reaction: Very strongly acid to moderately acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Suited
Management considerations:
• The main limitations are the wetness and the flooding.

• The wetness delays planting and harvesting in some years.
• Some crops may be damaged by the flooding in winter and early spring.
• Conservation tillage, crop residue management, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.

Pasture and hay

Suitability: Well suited
Management considerations:
• Few limitations affect the management of pasture and hayland.
• Deferment of grazing when the soil is wet minimizes compaction and damage to the stand and helps to prevent excessive runoff.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• When establishing a new forest crop, the seedling mortality rate may be high because of the high water table.
• Reinforcement plantings can be made until the desired stand is attained.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
• The potential for openland and woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Poorly suited
Management considerations:
• The main limitations affecting urban uses are the flooding, the wetness, and the moderately slow permeability.
• The flooding and the wetness are difficult to overcome.
• A suitable alternative site should be selected.

Interpretive Group

Land capability classification: 2w

WoC—Wolftever silt loam, 5 to 12 percent slopes

Setting

Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Intermittent drainageways and low stream terraces
Size of areas: 5 to 25 acres
Major land use: Pasture, hay, or woodland

Composition

Wolftever soil and similar components: 75 to 90 percent
Contrasting components: 10 to 25 percent

Minor Components

Similar components:
• Isolated areas of Apison, Corryton, and Townley soils
• Soils that are either moderately acid, slightly acid, or neutral
• Intermingled areas of somewhat poorly drained soils that have less clay in the subsoil than the Wolftever soil
Contrasting components:
• Small areas of Bloomingdale soils in depressions

• A few areas of Tasso soils
• Hamblen, Steadman, and Pettyjon soils along drainageways and in landscape positions similar to those of the Wolftever soil

Typical Profile

Surface layer:
0 to 8 inches—brown, very friable silt loam
Subsoil:
8 to 16 inches—strong brown, very friable silt loam
16 to 30 inches—brownish yellow, firm silty clay with light gray mottles
30 to 60 inches—olive yellow, firm silty clay with light greenish gray mottles
Substratum:
60 to 72 inches—pale yellow, firm silty clay with light greenish gray mottles

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderately slow
Available water capacity: High
Seasonal high water table: Between depths of 25 and 41 inches
Flooding: None
Soil reaction: Very strongly acid to moderately acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion and the wetness.
• The wetness delays planting and harvesting in some years.
• Crop species that have a short growing season and can tolerate the wetness should be selected for planting.
• Conservation tillage, crop residue management, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• A crop rotation that includes grasses and legumes helps to control erosion.
• Terraces, diversions, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and hay

Suitability: Well suited
Management considerations:
• Few limitations affect the management of pasture and hayland.
• Deferment of grazing when the soil is wet minimizes compaction and damage to the stand and helps to prevent excessive runoff.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• When establishing a new forest crop, the seedling mortality rate may be high because of the seasonal high water table.
• Reinforcement plantings can be made until the desired stand is attained.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife habitat

Suitability: Well suited
Management considerations:
• The potential for openland and woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large, open areas and provide food and cover.
• Buffer zones along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban uses

Suitability: Poorly suited

Management considerations:

• The main limitations affecting urban uses are the wetness and the moderately slow permeability in the subsoil.

• Special measures are needed to help overcome subsurface drainage problems.

• This soil is best suited to dwellings without basements.

• The moderately slow permeability and the clayey subsoil are limitations affecting some sanitary facilities and building site development.

• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 3e

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; and for wildlife habitat. It can be used to identify the limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Crops and Pasture

Gregory L. Brann, agronomist, Natural Resources Conservation Service, helped prepare this section.

General management needed for crops and pasture is suggested in this section. The estimated yields of the main crops and pasture plants are listed for each soil, the system of land capability classification used by the Natural Resources Conservation Service is explained, and prime farmland is described.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading "Detailed Soil Map Units." Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

In 1995, more than 33,000 acres in McMinn County was used as cropland or for hay (Tennessee Department of Agriculture 1995). The field crops suited to the soils and climate of McMinn County include burley tobacco, soybeans, corn, and wheat. The nearly level to sloping soils in the survey area generally are well suited to row crops. Most of the row crops are grown on uplands and old stream terraces because the acreage of bottom land is limited. The broad ridges and more nearly level areas are suited to grain crops. Very deep, well drained soils, such as Etowah, Waynesboro, Dewey, and Fullerton soils, are suited to tobacco and alfalfa. The more sloping areas of Bodine, Fullerton, Townley, and Coile soils are commonly used for hay and pasture. In addition to the land currently being cropped, some land that is idle, wooded, or pastured has good potential for use as cropland. Food production could be increased considerably by applying the latest technology to all of the cropland in the survey area. The information in this soil survey can facilitate the application of such technology.

Managing Cropland

The management systems needed on cropland are those that help to protect or improve the soils, control erosion, and minimize the water pollution caused by nutrients, soil particles, and plant residue carried by runoff. Water erosion is a major hazard on most of the soils used for crops or pasture in the county. It is a hazard on soils that have slopes of more than 2 percent. Examples of these soils include the Dewey, Fullerton, Waynesboro, and Corryton soils. As the

slope increases, the hazard of erosion and the difficulty in controlling erosion also increase.

Loss of the surface layer through erosion is damaging for two reasons. First, productivity is reduced as the surface layer is lost and part of the subsoil is incorporated into the plow layer. Loss of the surface layer is especially damaging on soils that have a clayey subsoil, such as the Dewey, Waynesboro, and Corryton soils, and on soils that have a layer below the subsoil that limits the depth of the root zone, such as the Townley, Bradyville, and Coile soils. Second, erosion on farmland results in the sedimentation of streams. Control of erosion minimizes this pollution and improves the quality of water for municipal and recreational uses and for fish and wildlife.

In many sloping areas of clayey soils, preparing a good seedbed is difficult because the original friable surface layer has been eroded. This degree of erosion is common in areas of the Dewey, Waynesboro, Etowah, and Fullerton soils. Erosion-control practices help to provide a protective surface cover, control runoff, and increase the rate of water infiltration. A cropping system that keeps a plant cover on the surface for extended periods generally can keep soil losses to an amount that does not reduce the productivity of the soil. In sloping areas on livestock farms, which require pasture and hay, including forage crops of grasses and legumes in the cropping system helps to control erosion. The forage crops also add nitrogen or organic matter, or both, to the soil and improve the soil tilth.

Minimizing tillage and leaving crop residue on the surface increase the rate of water infiltration and reduce the hazards of runoff and erosion. These practices can be effective on most of the soils in the survey area (fig. 9). In the more sloping areas used for corn or double-cropped soybeans, no-till farming helps to control erosion. It is effective on most of the soils in the survey area.

Terraces and diversions reduce the length of slopes and thus help to control runoff and erosion. They are most effective on deep or very deep, well drained soils that have long, uniform slopes.

Contour farming and contour stripcropping also help to control erosion in the county. They are best suited to soils that have smooth, uniform slopes. Some field stripcropping is done in areas that do not have smooth, uniform slopes. Although this is not as effective as contour stripcropping, it does help to reduce the hazard of erosion and the rate of runoff.

Wetness is a management concern on some soils in the county. Some areas of moderately well drained soils, such as the Hamblen, Steadman, Bellamy, and Wolftever soils, are used as cropland, but the wetness of these soils delays planting or hinders harvest in some years. Bloomingdale soils, which are poorly drained, are rarely used for crop production.

Many soils on uplands and stream terraces are very strongly acid to moderately acid unless they are limed. Applications of ground limestone are needed to raise the pH level sufficiently for the production of some crops. The levels of available phosphorus and potassium are naturally low in most of these soils. Additions of lime and fertilizer should be based on the results of soil tests, the needs of the crop, and a realistic yield expectation. The Cooperative Extension Service can help to determine the kind and amount of fertilizer and lime needed and the proper method of application.

Some of the soils in the county have a surface layer that is light in color and low in organic matter. A surface crust may form on these soils during periods of heavy rainfall. The crust is hard when dry and nearly impervious to water. It reduces the rate of water infiltration and increases the runoff rate. Regular additions of crop residue, manure, or other organic material can improve soil structure and minimize crusting. Most of the cropland in the county consists of soils that are subject to erosion if they are plowed in the fall.

Eroded, clayey soils, such as the Waynesboro and Dewey soils in some areas, become cloddy if they are plowed outside a narrow range in optimum moisture content. Fall plowing on such soils generally results in better tilth in the spring. If fields are plowed in the fall, plow on the contour and maintain drainageways in permanent vegetation. Leave plowed ground rough over winter. The content and size of rock fragments impairs the tilth of some soils. Bodine, Rockdell, and, in some areas, Fullerton soils may contain enough rock fragments that use of tillage implements is impractical.

Managing Pasture and Hayland

In 1996, there were about 47,000 beef and dairy cattle and calves in the county. Most of the hayland and pasture in McMinn County is in a mixture of grasses and legumes. Much of the hay is grown in rotation with pasture. Most of the harvested hay is rolled into round bales. Some of the higher quality hay is square bailed or preserved as silage.

A successful livestock enterprise depends on a forage program that provides large quantities of good-quality feed. Such a program can provide most of the feed for beef and dairy cattle. Renovation, deferred grazing, pasture rotation, proper fertility levels, and a well planned clipping and harvesting schedule are important management practices.

Figure 9.—Crop residue in an area of Dewey silty clay loam, 5 to 12 percent slopes, eroded. Crop residue management helps to control erosion, increase the rate of water infiltration and the available water capacity, and maintain soil tilth.

The nearly level and gently sloping, deep and very deep, well drained soils should be planted to the highest producing crops, such as corn silage, alfalfa, or a mixture of alfalfa and orchardgrass. Sod-forming grasses, such as tall fescue, minimize erosion in the steeper areas. Legumes can be established through renovation in areas that support sod-forming grasses.

Tall fescue is an important cool-season grass that is suited to a wide range of soil conditions. It is grown for both pasture and hay. The growth that occurs from August through November is commonly permitted to accumulate in the field and is "stockpiled" for grazing late in fall and in winter. For maximum production, nitrogen fertilizer should be applied during the stockpiling period. The rate of application should be based on the desired production level.

Warm-season grasses can be planted from April 1 to June 15. They should be planted between June 1 and June 15 if weeds are a potential problem. Warm-season forage plants help to alleviate the "summer slump" of cool-season grasses. They grow well during warm periods. Their greatest growth occurs from mid-June to September, which is the period when the growth of cool-season grasses is slow. Examples of warm-season grasses are eastern gammagrass, switchgrass, big bluestem, and Caucasian bluestem.

Renovation with legumes can increase forage yields in areas that have a 50 percent or better stand of grass. Renovation involves destroying part of the sod, applying lime and fertilizer, and seeding desirable forage species into the remaining sod. Adding legumes to grass stands provides higher quality feed. The legumes increase summer production and take nitrogen from the air. Alfalfa can fix an estimated 200 to 300 pounds of nitrogen per acre per year; red clover, 100 to 200 pounds; ladino clover, 100 to 150 pounds; and Korean lespedeza, 75 to 100 pounds.

Additional information about managing pasture and hayland can be obtained from the local office of the

Natural Resources Conservation Service or the Cooperative Extension Service.

Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in tables 5a and 5b. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of each map unit also is shown in the tables.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in tables 5a and 5b are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for woodland and for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit. Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by numerals 1 through 8. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have few limitations that restrict their use.

Class 2 soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

Class 5 soils are not likely to erode but have other limitations, impractical to remove, that limit their use.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation.

Class 7 soils have very severe limitations that make them unsuitable for cultivation.

Class 8 soils and miscellaneous areas have limitations that nearly preclude their use for commercial crop production.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, 2e. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c,* used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry (USDA 1961).

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w, s,* or *c* because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, woodland, wildlife habitat, or recreation.

The capability classification of the map units in this survey area is given in the section "Detailed Soil Map Units" and in the yields tables.

Prime Farmland

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

About 45,500 acres in the survey area, or nearly 17 percent of the total acreage, meets the soil requirements for prime farmland (fig. 10). Scattered areas of this land are throughout the county, but most are in general soil map units 1, 3, and 4, which are described under the heading "General Soil Map Units." Common crops grown on this land are corn, wheat, and small grain for grain and silage; soybeans; alfalfa for hay; and other grasses and legumes for hay and pasture.

A recent trend in land use in some parts of the survey area has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

The map units in the survey area that are considered prime farmland are listed in table 6. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps. The soil qualities that affect use and management are described under the heading "Detailed Soil Map Units."

Woodland Management and Productivity

Originally, all of McMinn County was forested. As the county was settled, much of the forestland was cleared for agricultural purposes. About 136,500 acres, or nearly half of the county, was forested in 1989. Of this total, about 2,200 acres was in the Cherokee National Forest, about 84,000 acres was owned by individuals, about 22,400 acres was part of farms, and about 28,000 acres was owned or leased by the forest industry (Tennessee Department of Agriculture 1995).

Soils of the county can produce good or excellent stands of commercial hardwood and pulpwood species. In most areas additional management is needed to achieve the best potential production. On better sites, plant competition from undesirable species is a major concern when establishing a new forest crop. Thinning out mature trees and undesirable species will improve production on most established sites. Species conversion and increased stocking are also needed in some native areas to improve production. Protection from grazing, fire, and disease and insect control also can improve the stands.

The largest areas of forestland are in general soil map units 2, 5, and 6, which are described in the section "General Soil Map Units." The common commercial species in the county are loblolly pine, shortleaf pine, and Virginia pine. Upland oaks, red maple, hickory, and yellow poplar are dominant in native forest areas.

Soils vary in their ability to produce trees. Available water capacity and depth of the root zone have major effects on tree growth. In addition to soils, elevation, aspect, and climate determine the kinds of trees that can be grown on a site.

The Natural Resources Conservation Service, the Tennessee Division of Forestry, or the Cooperative Extension Service can help to determine specific forestland management needs.

Figure 10.—An area of Hamblen silt loam, occasionally flooded. This soil is considered to be prime farmland. It has few limitations affecting hayland, pastureland, and cropland.

Table 7 can be used by woodland owners or forest managers in planning the use of soils for wood crops. Only those soils suitable for wood crops are listed. The table lists the ordination symbol for each soil. Soils assigned the same ordination symbol require the same general management and have about the same potential productivity.

In the table, *slight, moderate,* and *severe* indicate the degree of the major soil limitations to be considered in management (USDA 1980).

Erosion hazard is the probability that damage will occur as a result of site preparation and cutting where the soil is exposed along roads, skid trails, and fire lanes and in log-handling areas. Forests that have been burned or overgrazed are also subject to erosion. Ratings of the erosion hazard are based on the percent of the slope. A rating of *slight* indicates that no particular prevention measures are needed under ordinary conditions. A rating of *moderate* indicates that erosion-control measures are needed in certain silvicultural activities. A rating of *severe* indicates that special precautions are needed to control erosion in most silvicultural activities.

Equipment limitation reflects the characteristics and conditions of the soil that restrict use of the equipment generally needed in woodland management or harvesting. The chief characteristics and conditions considered in the ratings are slope, stones on the surface, rock outcrops, soil wetness, and texture of the surface layer. A rating of *slight* indicates that under

normal conditions the kind of equipment and season of use are not significantly restricted by soil factors. Soil wetness can restrict equipment use, but the wet period does not exceed 1 month. A rating of *moderate* indicates that equipment use is moderately restricted because of one or more soil factors. If the soil is wet, the wetness restricts equipment use for a period of 1 to 3 months. A rating of *severe* indicates that equipment use is severely restricted either as to the kind of equipment that can be used or the season of use. If the soil is wet, the wetness restricts equipment use for more than 3 months.

Seedling mortality refers to the death of naturally occurring or planted tree seedlings, as influenced by the kinds of soil, soil wetness, or topographic conditions. The factors used in rating the soils for seedling mortality are texture of the surface layer, depth to a seasonal high water table and the length of the period when the water table is high, rock fragments in the surface layer, effective rooting depth, and slope aspect. A rating of *slight* indicates that seedling mortality is not likely to be a problem under normal conditions. Expected mortality is less than 25 percent. A rating of *moderate* indicates that some problems from seedling mortality can be expected. Extra precautions are advisable. Expected mortality is 25 to 50 percent. A rating of *severe* indicates that seedling mortality is a serious problem. Extra precautions are important. Replanting may be necessary. Expected mortality is more than 50 percent.

Windthrow hazard is the likelihood that trees will be uprooted by the wind because the soil is not deep enough for adequate root anchorage. The main restrictions that affect rooting are a seasonal high water table and the depth to bedrock, a fragipan, or other limiting layers. A rating of *slight* indicates that under normal conditions no trees are blown down by the wind. Strong winds may damage trees, but they do not uproot them. A rating of *moderate* indicates that some trees can be blown down during periods when the soil is wet and winds are moderate or strong. A rating of *severe* indicates that many trees can be blown down during these periods.

Plant competition ratings indicate the degree to which undesirable species are expected to invade and grow when openings are made in the tree canopy. The main factors that affect plant competition are depth to the water table and the available water capacity. A rating of *slight* indicates that competition from undesirable plants is not likely to prevent natural regeneration or suppress the more desirable species. Planted seedlings can become established without undue competition. A rating of *moderate* indicates that competition may delay the establishment of desirable species. Competition may hamper stand development, but it will not prevent the eventual development of fully stocked stands. A rating of *severe* indicates that competition can be expected to prevent regeneration unless precautionary measures are applied (fig. 11).

The *potential productivity* of merchantable or *common trees* on a soil is expressed as a *site index*. The site index is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that woodland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

Trees to plant are those that are suitable for commercial wood production.

Recreation

McMinn County has many outdoor recreational facilities. The largest area of public land is about 2,200 acres of the Cherokee National Forest, in the eastern part of the county. Sports fields and picnic areas are incorporated into seven parks in the area. The Athens Regional Park has facilities for outdoor exhibitions in addition to sports fields and picnic areas. Three golf courses and four public swimming pools are available. The Hiwassee River, in the southern part of the county, is part of the tailwaters of Chickamauga Lake. The opportunity for a variety of water sports is available. One commercial hunting preserve is located in the eastern part of the county. Shooting ranges and facilities are also available.

The area has high potential for most types of recreational development. Attention should be given to such soil characteristics as depth, permeability, texture, slope, and drainage when recreational enterprises are developed.

The soils of the survey area are rated in table 8 according to limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation are also important. Soils subject to flooding are limited for recreational uses by the duration and intensity of

Figure 11.—A pine seedling in an area of Alcoa soils. Plant competition is a severe limitation in this area. Even though the soils are well suited or suited to woodland, plant competition is a management concern.

flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

In the table, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or a combination of these measures.

The information in the table can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 11 and interpretations for dwellings without basements and for local roads and streets in table 10.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils have mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes or stones or boulders that increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones and boulders, is firm after rains, and is not dusty when dry. If grading is needed, the depth of the soil over bedrock or a hardpan should be considered.

Paths and trails for hiking and horseback riding should require little or no cutting and filling. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once a year during the period of use. They have moderate slopes and few or no stones or boulders on the surface.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. The best soils for use as golf fairways are firm when wet, are not dusty when dry, and are not subject to prolonged flooding during the period of use. They have moderate slopes and no stones or boulders on the surface. The suitability of the soil for tees or greens is not considered in rating the soils.

Wildlife Habitat

Michael E. Zeman, biologist, Natural Resources Conservation Service, helped prepare this section.

Wildlife is an important natural resource of the county, providing a source of revenues through sport hunting and recreational opportunities, such as photography and fishing. Popular game species include bobwhite quail, cottontail rabbit, whitetail deer, mourning dove, and gray and fox squirrels.

The whitetail deer is the most popular game animal in the county. Deer populations are moderate and have grown considerably over the past 20 years. Harvest records from the Tennessee Wildlife Resources Agency (TWRA) indicate that essentially no deer were harvested in 1976 but nearly 900 deer were harvested in 1996. The eastern wild turkey was eliminated from the county by the 1950's but has since been re-introduced. Turkey populations remain low, but huntable populations now occur in parts of the county due to the TWRA restoration program and management of the habitat. The number of bobwhite quail in the county is low. The highest populations of bobwhite quail are in areas where cropland is adjacent to brushy fence rows or idle areas of native warm-season grasses, which provide cover. The cottontail rabbit population is low or moderate in the county. Good numbers occur across the county in areas where agricultural lands intermixed with low brushy cover provide the best habitat. The population of mourning dove is typically low in the county. Fall migrants of this game bird typically utilize crop fields, such as corn, grain sorghum, and soybeans, or fields recently planted to wheat.

There are three species of squirrels in the county and all occur in good numbers. Both the gray and the primarily nocturnal southern flying squirrels occur in good to excellent numbers throughout the hardwood forests. The fox squirrel typically occurs in lower numbers and is generally along woodland edges and woody fence rows near agricultural lands used for crop production. Squirrel populations vary greatly depending on the production of hard mast, such as acorns, hickory nuts, and beech nuts, from year to year. The Cherokee National Forest is one of the

largest areas that provides suitable habitat for the black bear in the State. As a result, some, although mostly transient, black bears are seen in the county. Waterfowl numbers are low in the county. The most common species migrating through the county include the wood duck, mallard, gadwall, and Canada goose. The highest numbers typically occur along the Chickamauga Reservoir, or the Hiwassee River, in the southern part of the county or along the main watercourses that have associated wetland habitat. Upland farm ponds and small lakes are often used for resting and roosting. Several species of furbearers occur in the county. Wetland furbearers include mink, muskrat, and beaver. They can be found in moderate to high numbers along streams, small lakes, and farm ponds. Upland furbearers are common and abundant throughout the county. They include bobcat, opossum, raccoon, gray fox, striped skunk, and coyote.

Many nongame species occur in abundance throughout the county. Different species of songbirds, both resident and migratory, are associated with different plant communities. Woodland birds include the Carolina chickadee, tufted titmouse, pileated woodpecker, and warblers. Openland birds include robins, meadowlarks, and various sparrows. Common birds of prey include the red-tailed hawk, sparrow hawk, barred owl, and screech owl. Common reptiles and amphibians include the eastern box turtle, hognose snake, copperhead snake, bullfrog, and dusky salamander. Common small mammals include hispid cotton rats, moles, shrews, and other rodents. The relative abundance of nongame species is dependent upon the type and quality of habitat available to the species.

State and Federally listed threatened or endangered wildlife species that may occur in the county include the snail darter and white fringeless orchid. Species that may migrate through the county include the bald eagle, peregrine falcon, osprey, sharp-shinned hawk, and Cooper's hawk.

Some of the soils in the county, such as the Neubert, Wolftever, Tasso, Dewey, Etowah, and, in the flatter areas, Fullerton soils, have only slight or moderate limitations affecting the impoundment of water. Other soils, such as the Toccoa, Rockdell, Coile, and Bodine soils, may have severe limitations as sites for ponds because of the excessive slopes or the susceptibility to seepage. Most of the ponds in the county are used for livestock water, but many are also stocked with fish and can be used for recreational fishing. Common fish species that are stocked include largemouth bass, bluegill sunfish, and channel catfish. The water in ponds is typically acidic because of the pH of the soil, and as a result, the production of fish may be limited. Few privately owned ponds are being intensively managed for the production of fish.

McMinn County has a total of about 395 miles of warmwater streams, in addition to part of Chickamauga Lake, which is in the southwestern portion of the county. Major streams of the county and tributaries to the Tennessee River include Roger's, North Mouse, Oostanaula, and Chestuee Creeks. These and other streams provide about 400 acres of aquatic habitat and support populations of largemouth bass, smallmouth bass, rock bass, bluegill, green sunfish, channel catfish, and several species of minnows and darters. Most of the streams are moderately productive with fair populations of warmwater fish. In the past there has been at least one commercial aquaculture operation in the county. Fish species raised included channel catfish and minnows. Overall, the topography renders much of the county unsuitable for extensive commercial pond construction. The most common aquifer that may provide adequate supplies of good-quality water is the East Tennessee Aquifer. This aquifer generally provides drinking water supplies within a depth of 300 feet, but the depth to large quantities of suitable water that may be needed for aquaculture production remains unclear. There are some outcrop springs associated with this aquifer, including one in the town of Athens.

Excluding artificial wetlands, such as upland farm ponds, there are several acres of natural wetlands in the county. In the 1980's, the State of Tennessee estimated that there were about 2,000 acres of wetlands in McMinn County. Most of the natural wetlands are along stream courses with native plant communities consisting of bottom-land hardwoods. These bottom-land hardwood wetlands provide some of the most productive wildlife habitat in the county. The bottom-land hardwoods improve water quality of streams by removing nutrients and trapping sediment from upland runoff, lowering water temperatures by shading streams, and providing leaf litter that serves as the foundation for aquatic food chains.

Conservation practices improve or provide quality wildlife habitat. On cropland, planned crop rotations and crop residue management provide food and winter cover for many species of wildlife. On grasslands, deferred grazing of livestock and fencing help to protect food plots and nesting cover and to protect fish habitat by providing streambank protection. Field borders and filter strips along streams help to protect water quality and provide food, cover, and travel lanes for many species of wildlife. Native, tall, warm-season grasses provide the best benefits for these types of areas. Selective thinning of woodlands should be

carried out in a manner that protects den trees and the best mast-producing trees. Other practices that can improve wildlife habitat include wildlife upland habitat management, wildlife wetland habitat management, fishpond management, pasture and hayland management, livestock exclusion, and woodland improvement. Conversely, some practices are harmful to wildlife. Those most often include indiscriminate burning, indiscriminate use of pesticides, heavy grazing, complete clean mowing in the growing (nesting) season, clean fall plowing, extensive clearcutting of timber, draining and clearing of wetlands, and removal of den and all mast-producing trees.

Technical assistance in the planning or application of wildlife conservation practices can be obtained from the Natural Resources Conservation Service; the University of Tennessee, Agricultural Extension Service; the Tennessee Wildlife Resources Agency; and the Tennessee Division of Forestry.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 9, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn, wheat, oats, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are fescue, orchardgrass, switchgrass, annual lespedeza, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are common ragweed, goldenrod, beggarweed, partridge pea, common pokeweed, and broom sedge.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of these plants are oak, poplar, cherry, sweetgum, apple, hawthorn, dogwood, hickory, blackberry, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are Russian-olive, southern bush honeysuckle, autumn-olive, and crabapple.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, spruce, fir, and cedar.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction,

salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, rushes, sedges, and cattails.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas include bobwhite quail, meadowlark, field sparrow, cottontail, and red fox.

Habitat for woodland wildlife consists of areas of deciduous plants or coniferous plants or both and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, ruffed grouse, woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, deer, wild boar, black bear, and a variety of nongame birds.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, mink, and beaver.

Hydric Soils

In this section, hydric soils are defined and described and the hydric soils in the survey area are listed.

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others 1979; U.S. Army Corps of Engineers 1987; National Research Council 1995; Tiner 1985). Criteria for each of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register 1994). These soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register 1995). These criteria are used to identify a phase of a soil series that normally is associated with wetlands. The criteria used are selected estimated soil properties that are described in "Keys to Soil Taxonomy" (Soil Survey Staff 1998) and in the "Soil Survey Manual" (Soil Survey Division Staff 1993).

If soils are wet enough for a long enough period to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils in this survey area are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and others 1996).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

The following map units meet the definition of hydric soils and, in addition, have at least one of the hydric soil indicators. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council 1995; Hurt and others 1996).

At Atkins-Arkaqua complex, frequently flooded (Atkins part)
Bm Bloomingdale silty clay loam, occasionally flooded

Map units that are made up of hydric soils may have small areas, or inclusions, of nonhydric soils in

the higher positions on the landform, and map units made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

The following map units, in general, do not meet the definition of hydric soils because they do not have one of the hydric soil indicators. A portion of these map units, however, may include hydric soils. Onsite investigation is recommended to determine whether hydric soils occur and the location of the included hydric soils.

Ea Emory silt loam, 0 to 4 percent slopes, occasionally flooded
Eo Etowah loam, occasionally flooded, overwash
Ha Hamblen silt loam, occasionally flooded
Ne Neubert loam, frequently flooded
St Steadman silty clay loam, frequently flooded
WoB Wolftever silt loam, 1 to 5 percent slopes, occasionally flooded

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil Properties" section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 or 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Table 10 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special

feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to bedrock or a very firm dense layer, stone content, soil texture, and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and depth to the water table.

Dwellings and *small commercial buildings* are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, and shrinking and swelling can cause the movement of footings. A high water table, depth to bedrock, large stones, slope, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 or 6 feet are not considered.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or stabilized soil material; and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock, a high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, and depth to a high water table affect the traffic-supporting capacity.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, a high water table, depth to bedrock, and the available water capacity in the upper 40 inches affect plant growth. Flooding, wetness, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

Sanitary Facilities

Table 11 shows the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

The table also shows the suitability of the soils for use as daily cover for landfill. A rating of *good* indicates that soil properties and site features are favorable for the use and good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated good; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, a high water table, depth to bedrock, and flooding affect absorption of the effluent. Large stones and bedrock interfere with installation.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to filter the effluent effectively. Many local ordinances require that this material be of a certain thickness.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Lagoons generally are designed to

hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

The table gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, a high water table, depth to bedrock, flooding, and large stones.

Excessive seepage resulting from rapid permeability in the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. Slope and bedrock can cause construction problems, and large stones can hinder compaction of the lagoon floor.

Sanitary landfills are areas where solid waste is disposed of by burying it in soil. There are two types of landfill—trench and area. In a trench landfill, the waste is placed in a trench. It is spread, compacted, and covered daily with a thin layer of soil excavated at the site. In an area landfill, the waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of ground-water pollution. Ease of excavation and revegetation should be considered.

The ratings in the table are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock, a high water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, and soil reaction affect trench landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

Soil texture, wetness, coarse fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy or silty soils that are free of large stones or excess gravel are the best cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are subject to wind erosion.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

Construction Materials

Table 12 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a *probable* or *improbable* source of sand and gravel. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help to determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material, a low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized

particles and have a plasticity index of less than 10. They have a moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, a high shrink-swell potential, many stones, or slopes of more than 25 percent. They are wet and have a water table at a depth of less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

Sand and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In the table, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Coarse fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, and bedrock.

Soils rated *good* have friable, loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are naturally fertile or respond well to fertilizer and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel or stones, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel or stones, have slopes of more than 15 percent, or have a seasonal high water table at or near the surface.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Water Management

Table 13 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives for each soil the restrictive features that affect drainage, irrigation, terraces and diversions, and grassed waterways.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment.

Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table and permeability of the aquifer. Depth to bedrock and the content of large stones affect the ease of excavation.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock or to other layers that affect the rate of water movement, permeability, depth to a high water table or depth of standing water if the soil is subject to ponding, slope, and susceptibility to flooding. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage may be adversely affected by acidity. Availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock. The performance of a system is affected by the depth of the root zone and soil reaction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock affect the construction of grassed waterways. Low available water capacity, restricted rooting depth, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey.

Soil properties are ascertained by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine particle-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in tables. They include engineering index properties, physical and chemical properties, and pertinent soil and water features.

Engineering Index Properties

Table 14 gives the engineering classifications and the range of index properties for the layers of each soil in the survey area.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM 1993) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO 1986).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of particle-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is generally omitted in the table.

Physical and Chemical Properties

Table 15 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In table 15, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3- or 1/10-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity (K_{sat}). The estimates in the table indicate the rate of water movement, in inches per hour, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at 1/3- or 1/10-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 15, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and

tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in table 15 as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Soil Features

Table 16 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical or chemical properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, and dense layers. The table indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate,* or *high,* is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low, moderate,* or *high.* It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Water Features

Table 17 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. The table indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. The table indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff 1975, 1998). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 18 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Ultisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udult (*Ud*, meaning humid, plus *ult*, from Ultisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Paleudults (*Pale*, meaning old, plus *udult*, the suborder of the Ultisols that has a udic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Paleudults.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle size, mineral content, soil temperature regime, soil depth, reaction, and clay activity. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine, kaolinitic, thermic Typic Paleudults.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" (Soil Survey Division Staff 1993). Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" (Soil Survey Staff 1975) and in "Keys to Soil Taxonomy" (Soil Survey Staff 1998). Unless otherwise indicated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

Alcoa Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Southern Appalachian Ridges and Valleys (in the Red Hills area)
Landscape position: Lower side slopes, footslopes, and terraces
Parent material: Alluvium and colluvium derived from calcareous sandstone and quartzose limestone

Slope range: 2 to 25 percent

Taxonomic class: Fine, parasesquic, thermic Rhodic Paleudults

Associated soils: Tellico, Red Hills, and Steekee soils on adjacent uplands; Neubert soils in adjacent drainageways and on flood plains

Typical Pedon

Alcoa loam, 5 to 12 percent slopes, eroded; 3.1 miles southwest on State Route 39 from the intersection with U.S. Highway 411, about 50 feet east of State Route 39; USGS Englewood topographic quadrangle; lat. 35 degrees 23 minutes 13 seconds N. and long. 84 degrees 26 minutes 23 seconds W.

Oi—1 inch to 0; slightly decomposed leaves and twigs.

A—0 to 3 inches; dark reddish brown (5YR 3/4) loam; moderate medium subangular blocky structure; very friable; many fine roots; strongly acid; clear smooth boundary.

Bt1—3 to 14 inches; dark red (2.5YR 3/6) sandy clay loam; moderate fine subangular blocky structure; friable; many fine and few medium roots; common faint clay films on faces of peds; very strongly acid; clear smooth boundary.

Bt2—14 to 33 inches; dark reddish brown (2.5YR 3/4) clay; moderate medium subangular blocky structure; friable; common fine and few medium roots; common faint clay films on faces of peds; very strongly acid; clear smooth boundary.

Bt3—33 to 49 inches; dark reddish brown (2.5YR 3/4) clay; few fine prominent brownish yellow (10YR 6/6) mottles; weak medium subangular blocky structure; friable; few fine roots; common distinct clay films on faces of peds; very strongly acid; clear smooth boundary.

Bt4—49 to 62 inches; dark reddish brown (2.5YR 3/4) clay; few fine prominent brownish yellow (10YR 6/6) mottles; weak medium subangular blocky structure; friable; few faint clay films on faces of peds; very strongly acid.

Range in Characteristics

Thickness of the solum: 50 to more than 90 inches
Depth to bedrock: More than 60 inches
Size and kind of rock fragments: Pebbles and channers of calcareous sandstone, shale, and quartzose limestone
Reaction: Very strongly acid or strongly acid in unlimed areas
A horizon:
Hue—10R to 5YR
Value—3
Chroma—3 to 6
Texture—loam or sandy loam
Content of rock fragments—0 to 10 percent
Bt horizon:
Hue—10R to 5YR
Value—3
Chroma—3 to 6
Mottles—in shades of brown or yellow
Texture—sandy clay loam, clay loam, clay, or sandy clay
Content of rock fragments—0 to 15 percent

Apison Series

Depth class: Moderately deep (fig. 12)
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Ridge crests and side slopes
Parent material: Residuum derived from acid shale and interbedded sandstone
Slope range: 5 to 60 percent

Taxonomic class: Fine-loamy, siliceous, semiactive, thermic Typic Hapludults

Associated soils: Sunlight, Coile, Corryton, Coghill, and Tellico soils

Typical Pedon

Apison loam, in an area of Apison-Coile complex, 25 to 60 percent slopes; 6.3 miles east of Englewood on State Route 39 to Yoeder Branch, 820 feet east of Yoeder Branch, 250 feet south of State Route 39, on an upper side slope in a mixed forest; USGS Mecca topographic quadrangle; lat. 35 degrees 21 minutes 51 seconds N. and long. 84 degrees 25 minutes 49 seconds W.

A—0 to 3 inches; brown (7.5YR 4/4) loam; moderate medium granular structure; friable; common fine and medium roots; moderately acid; clear wavy boundary.

BA—3 to 8 inches; yellowish red (5YR 5/6) clay loam; common medium faint reddish brown (5YR 4/3) mottles; weak medium subangular blocky structure; friable; common fine and medium roots; 5 percent shale channers; strongly acid; clear wavy boundary.

Bt—8 to 19 inches; yellowish red (5YR 4/6) clay loam; common fine distinct brown (7.5YR 4/3) mottles; moderate medium subangular blocky structure; friable; few fine and medium roots; common faint clay films on faces of peds;

10 percent shale channers; strongly acid; clear wavy boundary.

BC—19 to 22 inches; strong brown (7.5YR 4/6) channery clay loam; many medium prominent brownish yellow (10YR 6/6) mottles; moderate medium platy structure; friable; few fine roots; 20 percent shale channers; strongly acid; abrupt smooth boundary.

Cr/C—22 to 42 inches; olive yellow (2.5Y 6/6), soft sandy shale (Cr part); layers of brown (7.5YR 4/4) sandy loam with common medium distinct strong brown (7.5YR 5/8) mottles (C part); massive; friable; few fine roots; 2 percent shale channers; strongly acid; abrupt wavy boundary.

Cr—42 to 60 inches; olive yellow, sandy shale.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to soft bedrock: 20 to 40 inches
Depth to hard bedrock: More than 60 inches
Size and kind of rock fragments: Channers and pebbles of sandstone and shale
Reaction: Very strongly acid or strongly acid in unlimed areas
A horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 or 4
Texture—loam or silt loam
Content of rock fragments—0 to 15 percent
BA horizon:
Hue—5YR to 10YR
Value—4 or 5
Chroma—3 to 6
Texture—clay loam, silty clay loam, or loam
Content of rock fragments—0 to 15 percent
Bt horizon:
Hue—5YR to 10YR
Value—4 to 6
Chroma—4 to 8
Mottles—(if they occur) in shades of red, yellow, or brown
Texture of the fine-earth fraction—clay loam, silty clay loam, or loam
Content of rock fragments—0 to 20 percent
BC horizon:
Hue—5YR to 10YR
Value—4 to 6
Chroma—4 to 8
Mottles—(if they occur) in shades of red, yellow, or brown
Texture of the fine-earth fraction—clay loam, silty clay loam, or loam
Content of rock fragments—2 to 20 percent
C horizon:
Hue—5YR to 10YR
Value—4 to 6
Chroma—4 to 8
Mottles—(if they occur) in shades of red, yellow, brown, or olive
Texture of the fine-earth fraction—sandy loam, clay loam, sandy clay loam, silt loam, silty clay loam, or loam
Content of rock fragments—2 to 30 percent
Cr horizon:
Brown to olive yellow, soft, sandy shale

Arkaqua Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderate
Physiographic area: Blue Ridge
Landscape position: Flood plains
Parent material: Alluvium
Slope range: 0 to 3 percent

Taxonomic class: Fine-loamy, mixed, active, mesic Fluvaquentic Dystrudepts

Associated soils: Atkins soils in landscape positions similar to those of the Arkaqua soils; Harmiller and McCamy soils on adjacent uplands

Typical Pedon

Arkaqua silt loam, in an area of Atkins-Arkaqua complex, frequently flooded; 9 miles east of Englewood on State Route 39, about 3.9 miles southwest on USDA Forest Service Road 297, about 1,375 feet south of the road, in a stand of mixed hardwoods; USGS Mecca topographic quadrangle; lat. 35 degrees 19 minutes 43 seconds N. and long. 84 degrees 25 minutes 26 seconds W.

Oi—1 inch to 0; slightly decomposed hardwood litter and roots.

Oe—0 to 2 inches; moderately decomposed hardwood litter and roots.

A—2 to 7 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; very friable; many fine and common medium roots; very strongly acid; clear smooth boundary.

Bw—7 to 14 inches; light yellowish brown (2.5Y 6/4) loam; weak fine subangular blocky structure; friable; common fine and few medium roots; common accumulations of manganese; few medium distinct light brownish gray (10YR 6/2) depletions in the lower part of the horizon; extremely acid; clear smooth boundary.

Bg1—14 to 22 inches; light brownish gray (2.5Y 6/2) loam; common medium distinct olive yellow (2.5Y 6/6) mottles; weak fine subangular blocky structure; friable; common fine roots; 2 percent rounded sandstone pebbles; common fine dark masses of manganese; extremely acid; clear smooth boundary.

Bg2—22 to 33 inches; light gray (2.5Y 7/1) sandy loam; many coarse prominent strong brown (7.5YR 5/8) and common coarse distinct light yellowish brown (2.5Y 6/4) mottles; weak medium subangular blocky structure; very friable; 5 percent rounded sandstone pebbles; extremely acid; abrupt smooth boundary.

Cg1—33 to 45 inches; light gray (2.5Y 7/1) very gravelly sandy loam; many coarse prominent strong brown (7.5YR 5/8) and common coarse distinct light yellowish brown (2.5Y 6/4) mottles; massive; friable; 40 percent rounded sandstone pebbles; extremely acid; gradual smooth boundary.

Cg2—45 to 55 inches; gray (2.5Y 6/1) very gravelly loam; common medium prominent yellowish brown (10YR 5/6) and few medium distinct light yellowish brown (2.5Y 6/4) mottles; massive; friable; 50 percent rounded sandstone pebbles; extremely acid; clear smooth boundary.

Cg3—55 to 60 inches; gray (N 5/0) very gravelly loam; common medium prominent strong brown (7.5YR 5/8) and common medium distinct light yellowish brown (2.5Y 6/4) mottles; massive; friable; 10 percent shale channers; 40 percent rounded sandstone pebbles; extremely acid.

Range in Characteristics

Thickness of the solum: 30 to 50 inches
Depth to bedrock: More than 60 inches
Depth to seasonal high water table: 12 to 24 inches
Size and kind of rock fragments: Pebbles of arkosic sandstone and metasandstone
Reaction: Extremely acid to strongly acid

A horizon:
Hue—10YR
Value—3 or 4
Chroma—2 or 3
Texture—silt loam or loam
Content of rock fragments—0 to 15 percent

Bw horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture—silt loam, loam, or silty clay loam
Content of rock fragments—0 to 10 percent

Bg horizon:
Hue—10YR or neutral
Value—4 to 7
Chroma—0 to 2
Mottles—in shades of brown, yellow, or red
Texture—silt loam, loam, or sandy loam
Content of rock fragments—0 to 15 percent

Cg horizon:
Hue—10YR or neutral
Value—5 to 7
Chroma—0 to 2
Mottles—in shades of brown, yellow, or red
Texture of the fine-earth fraction—loam, sandy loam, or loamy sand
Content of rock fragments—0 to 60 percent

Atkins Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Slow to moderately rapid
Physiographic area: Blue Ridge
Landscape position: Flood plains
Parent material: Alluvium
Slope range: 0 to 3 percent

Taxonomic class: Fine-loamy, mixed, active, acid, mesic Typic Fluvaquents

Associated soils: Arkaqua soils in landscape positions similar to those of the Atkins soils; Harmiller and McCamy soils on adjacent uplands

Typical Pedon

Atkins silt loam, in an area of Atkins-Arkaqua complex, frequently flooded; 9 miles east of Englewood on State Route 39, about 3.9 miles southwest on USDA Forest Service Road 297, about 1,375 feet south of the road, in a stand of mixed hardwoods; USGS Mecca topographic quadrangle; lat. 35 degrees 19 minutes 43 seconds N. and long. 84 degrees 25 minutes 39 seconds W.

Oe—0 to 2 inches; moderately decomposed hardwood litter and roots.

A—2 to 6 inches; brown (10YR 4/3) silt loam; weak fine granular structure; very friable; many fine and common medium roots; very strongly acid; clear smooth boundary.

Bg1—6 to 30 inches; grayish brown (10YR 5/2) loam; common fine distinct yellowish brown (10YR 5/6) mottles; weak fine subangular blocky structure; friable; few fine and common medium roots; few

accumulations of manganese; extremely acid; clear smooth boundary.

Bg2—30 to 42 inches; grayish brown (10YR 5/2) sandy loam; common medium distinct yellowish brown (10YR 5/6) mottles; weak fine subangular blocky structure; friable; common fine roots; common fine dark masses of manganese; extremely acid; clear smooth boundary.

Cg—42 to 60 inches; light brownish gray (10YR 6/2) sandy loam; many coarse distinct strong brown (7.5YR 5/8) and common coarse distinct light yellowish brown (2.5Y 6/4) mottles; massive; very friable; 5 percent rounded sandstone pebbles; extremely acid.

Range in Characteristics

Thickness of the solum: 25 to 50 inches
Depth to bedrock: More than 60 inches
Depth to seasonal high water table: 0 to 12 inches
Size and kind of rock fragments: Pebbles of arkosic sandstone and metasandstone
Reaction: Extremely acid to strongly acid
A horizon:
Hue—10YR
Value—4 to 6
Chroma—1 to 3
Texture—silt loam or loam
Content of rock fragments—0 to 15 percent
Bg horizon:
Hue—10YR or neutral
Value—4 to 6
Chroma—0 to 2
Mottles—in shades of brown, yellow, or red
Texture—silt loam, loam, sandy loam, or clay loam
Content of rock fragments—0 to 15 percent
Cg horizon:
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—1 or 2
Mottles—in shades of brown, yellow, or red
Texture of the fine-earth fraction—sandy loam or loamy sand
Content of rock fragments—0 to 60 percent

Bellamy Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderately slow
Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Low stream terraces and drainageways
Parent material: Mixed alluvium
Slope range: 1 to 5 percent

Taxonomic class: Fine-loamy, siliceous, semiactive, thermic Fragiaquic Hapludults

Associated soils: Dewey, Fullerton, and Waynesboro soils on adjacent uplands; Hamblen and Bloomingdale soils on adjacent flood plains

Typical Pedon

Bellamy silt loam, 1 to 5 percent slopes; 10.75 miles south of Athens on U.S. Highway 11, about 5.75 miles northwest on County Road 50, about 1.5 miles northeast on County Road 51, about 500 feet north of County Road 51, in a hayfield adjacent to Rogers Creek; USGS Goodfield topographic quadrangle; lat. 35 degrees 24 minutes 02 seconds N. and long. 84 degrees 46 minutes 32 seconds W.

Ap—0 to 9 inches; brown (10YR 5/3) silt loam; moderate medium granular structure; very friable; many fine roots; common fine manganese concretions; slightly acid; abrupt smooth boundary.

BE—9 to 17 inches; yellowish brown (10YR 5/6) silt loam; many medium prominent yellow (2.5Y 7/6) mottles; moderate medium subangular blocky structure; very friable; common medium roots; common fine prominent light gray (2.5Y 7/2) iron depletions in the lower part; common medium accumulations of iron and manganese; strongly acid; clear smooth boundary.

Bt—17 to 25 inches; pale brown (10YR 6/3) clay loam; common medium prominent yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; friable; common fine roots; few clay films on faces of peds; common fine faint light brownish gray (2.5Y 6/2) iron depletions; common fine accumulations of iron and manganese; strongly acid; clear smooth boundary.

Btx1—25 to 38 inches; yellowish brown (10YR 5/6) clay loam; strong medium subangular blocky structure; firm; few very fine and fine roots along vertical faces of peds; 50 to 60 percent fragic properties; few clay films on faces of peds; many coarse prominent light brownish gray (2.5Y 6/2) iron depletions; common fine accumulations of iron and manganese; 5 percent angular chert pebbles and rounded sandstone pebbles; strongly acid; gradual smooth boundary.

Btx2—38 to 58 inches; grayish brown (2.5Y 5/2) clay loam; common medium prominent brown (10YR 5/3) and few medium prominent brownish yellow (10YR 6/6) mottles; strong medium subangular blocky structure; firm; 40 to 60 percent fragic

properties; few clay films on faces of peds; few medium accumulations of iron and manganese; 5 percent angular chert pebbles and rounded sandstone pebbles; strongly acid; gradual smooth boundary.

BC—58 to 67 inches; mottled light brownish gray (2.5Y 6/2), brown (10YR 5/3), and brownish yellow (10YR 6/6) silty clay loam; weak medium subangular blocky structure; firm; many medium and coarse accumulations of iron and manganese; strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 72 inches
Depth to bedrock: More than 60 inches
Depth to fragic properties: 14 to 24 inches
Depth to seasonal high water table: 15 to 24 inches
Size and kind of rock fragments: Pebbles of chert and sandstone
Reaction: Very strongly acid or strongly acid in unlimed areas
Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—2 to 4
Texture—silt loam or loam
Content of rock fragments—0 to 5 percent
BE horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 8
Mottles—in shades of yellow, brown, or gray in the lower part
Texture—silt loam
Content of rock fragments—0 to 5 percent
Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 8
Mottles—in shades of yellow, gray, or brown
Texture—silt loam, loam, or clay loam
Content of rock fragments—0 to 10 percent
Btx horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—2 to 8
Mottles—in shades of yellow, gray, or brown
Texture—silt loam, clay loam, or loam
Content of rock fragments—0 to 10 percent
BC horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—2 to 6
Mottles—in shades of yellow, gray, or brown
Texture—silty clay loam, silt loam, loam, or clay loam
Content of rock fragments—0 to 15 percent

Bloomingdale Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Moderate
Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Flood plains and depressions
Parent material: Mixed alluvium derived from shale and limestone
Slope range: 0 to 2 percent

Taxonomic class: Fine, mixed, semiactive, nonacid, thermic Typic Endoaquepts

Associated soils: Steadman and Hamblen soils on adjacent flood plains; Corryton, Townley, Coile, Dewey, Fullerton, and Bodine soils on adjacent uplands

Typical Pedon

Bloomingdale silty clay loam, occasionally flooded; 3 miles south of Riceville on U.S. Highway 11, about 3.5 miles west on County Road 50, about 2.4 miles northwest on County Road 51, about 850 feet north, in an idle hayfield; USGS Goodfield topographic quadrangle; lat. 35 degrees 24 minutes 04 seconds N. and long. 84 degrees 46 minutes 37 seconds W.

Ap—0 to 5 inches; gray (2.5Y 5/1) silty clay loam; moderate medium granular structure; friable; many fine roots; slightly acid; abrupt smooth boundary.

Bg—5 to 14 inches; gray (10YR 6/1) clay; common fine prominent yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; friable; common fine roots; 2 percent chert gravel; slightly acid; gradual smooth boundary.

Cg1—14 to 28 inches; gray (10YR 6/1) clay; common medium prominent yellowish brown (10YR 5/6) mottles; massive; friable; few fine roots; few fine and medium dark concretions; 2 percent chert gravel; neutral; gradual smooth boundary.

Cg2—28 to 60 inches; gray (N 6/0) clay; many medium prominent yellowish brown (10YR 5/6) mottles; massive; friable; many fine and medium dark concretions; 2 percent chert gravel; neutral.

Range in Characteristics

Thickness of the solum: 14 to 40 inches
Depth to bedrock: More than 60 inches

Depth to seasonal high water table: 0 to 12 inches
Size and kind of rock fragments: Mostly rounded pebbles of chert
Reaction: Moderately acid to moderately alkaline
Ap horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—1 to 4
Texture—silty clay loam or silt loam
Content of rock fragments—0 to 5 percent
Bg horizon:
Hue—7.5YR to 5Y or neutral
Value—5 or 6
Chroma—0 to 2
Mottles—in shades of brown, red, or gray
Texture—silty clay loam, silty clay, or clay
Content of rock fragments—0 to 5 percent
Cg horizon:
Hue—7.5YR to 5Y or neutral
Value—5 to 7
Chroma—0 to 2
Mottles—in shades of brown, red, or gray
Texture of the fine-earth fraction—silty clay loam, silty clay, or clay
Content of rock fragments—0 to 20 percent below a depth of 40 inches

Bodine Series

Depth class: Very deep
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Ridge crests, shoulder slopes, and side slopes
Parent material: Residuum derived from cherty limestone and dolomite; the upper 24 inches may have formed in colluvium or creep
Slope range: 5 to 60 percent

Taxonomic class: Loamy-skeletal, siliceous, semiactive, thermic Typic Paleudults

Associated soils: Fullerton and Dewey soils in landscape positions similar to those of the Bodine soils; Minvale soils on footslopes

Typical Pedon

Bodine gravelly silt loam, 5 to 12 percent slopes, eroded; 5.2 miles west on State Route 305 from the intersection with U.S. Highway 11, about 0.4 mile west on County Road 195, in a loblolly pine plantation; USGS Tranquillity topographic quadrangle; lat. 35 degrees 31 minutes 40 seconds N. and 84 degrees 39 minutes 32 seconds W.

Oi—2 to 0 inches; slightly decomposed pine needles, twigs, and hardwood litter.

Oe—0 to 1 inch; partially decomposed pine needles and twigs.

A—1 to 6 inches; brown (10YR 4/3) gravelly silt loam; moderate medium granular structure; very friable; many fine, common medium, and few coarse roots; 20 percent chert gravel; slightly acid; clear smooth boundary.

BE—6 to 15 inches; yellowish brown (10YR 5/4) gravelly silt loam; weak fine subangular blocky structure; very friable; common fine and medium roots; 20 percent chert gravel; slightly acid; clear smooth boundary.

Bt1—15 to 25 inches; yellowish brown (10YR 5/4) very gravelly silty clay loam; weak medium subangular blocky structure; friable; common fine and medium roots; few faint clay films on faces of peds; 40 percent chert gravel; very strongly acid; clear wavy boundary.

Bt2—25 to 36 inches; strong brown (7.5YR 5/6) very gravelly clay loam; few fine distinct brownish yellow (10YR 6/6) mottles; moderate medium subangular blocky structure; friable; few fine and medium roots; common distinct clay films on faces of peds and in pores; 50 percent angular chert pebbles; very strongly acid; abrupt smooth boundary.

Bt3—36 to 50 inches; strong brown (7.5YR 5/6) gravelly clay; common medium yellowish red (5YR 5/6) mottles; friable; few fine and medium roots; many distinct yellowish red (5YR 5/6) clay films on faces of peds and in pores; 25 percent angular chert pebbles; very strongly acid; clear smooth boundary.

Bt4—50 to 62 inches; mottled red (2.5YR 4/8), strong brown (7.5YR 5/8), and brownish yellow (10YR 6/6) gravelly clay; weak medium angular blocky structure; firm; few fine roots; many distinct strong brown (7.5YR 5/6) clay films on faces of peds and in pores; 25 percent chert pebbles and cobbles; very strongly acid.

Range in Characteristics

Thickness of the solum: More than 60 inches
Depth to bedrock: More than 60 inches
Size and kind of rock fragments: Pebbles and cobbles of chert
Reaction: Extremely acid to strongly acid in unlimed areas
A or Ap horizon:
Hue—10YR or 2.5Y

Value—3 to 5
Chroma—2 or 3
Texture of the fine-earth fraction—silt loam or loam
Content of rock fragments—20 to 50 percent

BE horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 4
Texture of the fine-earth fraction—silt loam or loam
Content of rock fragments—20 to 50 percent

Bt horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—4 to 8
Mottles—in shades of brown, yellow, or red; in some pedons the lower part of the Bt horizon is mottled and has no dominant matrix color
Texture of the fine-earth fraction—silt loam, loam, silty clay loam, clay loam, or clay
Content of rock fragments—25 to 85 percent (ranges from 35 to 65 percent in the control section)

Bradyville Series

Depth class: Deep
Drainage class: Well drained
Permeability: Moderately slow
Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Ridge crests and side slopes
Parent material: Residuum derived from limestone or dolomite
Slope range: 5 to 50 percent

Taxonomic class: Fine, mixed, semiactive, thermic Typic Hapludalfs

Associated soils: Dewey, Fullerton, Bodine, and Waynesboro soils

Typical Pedon

Bradyville gravelly silt loam, in an area of Bradyville-Rock outcrop complex, 25 to 50 percent slopes; 3.7 miles west on State Route 30 from the intersection with U.S. Highway 11, about 1.9 miles south on County Road 110, about 1 mile west on County Road 107, about 400 feet north in a mixed hardwood forest; USGS Riceville topographic quadrangle; lat. 35 degrees 27 minutes 26 seconds N. and long. 84 degrees 42 minutes 47 seconds W.

Oi—1/2 inch to 0; leaf litter and twigs.

A—0 to 7 inches; dark yellowish brown (10YR 4/4) gravelly silt loam; weak fine subangular blocky structure; friable; many fine and medium roots; 25 percent angular chert pebbles; strongly acid; abrupt smooth boundary.

Bt1—7 to 20 inches; strong brown (7.5YR 5/6) clay; common medium faint yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; friable; common fine and medium roots; common distinct clay films on faces of peds and in pores; 10 percent angular chert pebbles; moderately acid; clear smooth boundary.

Bt2—20 to 27 inches; yellowish red (5YR 5/6) clay; moderate fine subangular blocky structure; firm; few fine roots; many distinct clay films on faces of peds and in pores; 10 percent angular chert pebbles and cobbles; moderately acid; clear smooth boundary.

Bt3—27 to 44 inches; yellowish red (5YR 5/8) clay; moderate medium subangular blocky structure; firm; very few fine roots; common distinct clay films on faces of peds and in pores; 10 percent angular chert pebbles; slightly acid; abrupt smooth boundary.

R—44 inches; hard, gray limestone.

Range in Characteristics

Thickness of the solum: 40 to 60 inches
Depth to hard bedrock: 40 to 60 inches
Size and kind of rock fragments: Pebbles of chert
Reaction: Strongly acid to neutral

Ap or A horizon:
Hue—7.5YR or 10YR
Value—3 or 4
Chroma—3 or 4
Texture of the fine-earth fraction—silt loam
Content of rock fragments—0 to 25 percent

Bt horizon:
Hue—2.5YR to 7.5YR
Value—4 or 5
Chroma—4 to 8
Mottles—in shades of yellow, brown, or red
Texture—clay or silty clay
Content of rock fragments—0 to 15 percent

Cataska Series

Depth class: Shallow
Drainage class: Excessively drained
Permeability: Moderately rapid
Physiographic area: Blue Ridge
Landscape position: Steep side slopes
Parent material: Residuum derived from tilted metashale and fractured arkosic sandstone
Slope range: 35 to 90 percent

Taxonomic class: Loamy-skeletal, mixed, semiactive, mesic, shallow Typic Dystrudepts

Associated soils: Unicoi soils on crests and steep side slopes

Typical Pedon

Cataska very channery loam, 65 to 90 percent slopes, very rocky; 9 miles east of Englewood on State Route 39, about 5.9 miles southwest on USDA Forest Service Road 297 to iron gate, 2,250 feet north on an old logging road, in a mixed hardwood forest; USGS Mecca topographic quadrangle; lat. 35 degrees 19 minutes 19 seconds N. and long. 84 degrees 27 minutes 08 seconds W.

Oi—1 inch to 0; slightly decomposed pine needles and hardwood leaf litter.
Oe—0 to 1 inch; moderately decomposed leaf litter and pine needles.
A—1 to 6 inches; brown (10YR 4/3) very channery loam; moderate medium granular structure; very friable; many fine roots; 40 percent metashale channers; very strongly acid; abrupt smooth boundary.
Bw—6 to 11 inches; yellowish brown (10YR 5/8) extremely channery loam; common fine distinct strong brown (7.5YR 5/6) mottles; weak fine subangular blocky structure; friable; common fine roots; 70 percent metashale channers; very strongly acid; clear smooth boundary.
Cr—11 to 48 inches; soft, tilted metashale.

Range in Characteristics

Thickness of the solum: 7 to 20 inches
Depth to soft bedrock: Less than 20 inches
Depth to hard bedrock: More than 48 inches
Size and kind of rock fragments: Channers and pebbles of metashale and arkosic sandstone
Reaction: Very strongly acid or strongly acid
A horizon:
Hue—10YR
Value—4 or 5
Chroma—3 or 4
Texture of the fine-earth fraction—loam or silt loam
Content of rock fragments—25 to 45 percent
Bw horizon:
Hue—10YR
Value—4 or 5
Chroma—4 to 8
Mottles—(if they occur) in shades of brown or yellow
Texture of the fine-earth fraction—loam or silt loam
Content of rock fragments—40 to 80 percent
Cr horizon:
Brown to yellowish brown metashale and soft, fractured arkosic sandstone

Coghill Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Ridges and side slopes
Parent material: Interbedded, calcareous sandstone and shale
Slope range: 5 to 25 percent

Taxonomic class: Fine, mixed, semiactive, thermic Typic Hapludults

Associated soils: Apison, Coile, and Tellico soils

Typical Pedon

Coghill sandy loam, in an area of Coghill-Apison complex, 5 to 12 percent slopes; 2.25 miles west of Etowah County Road 660, about 2.3 miles south on County Road 609, about 875 feet east on County Road 805, about 1,500 feet northeast along a ridge crest of Little Mountain, in a mixed forest; USGS Etowah topographic quadrangle; lat. 35 degrees 18 minutes 06 seconds N. and long. 84 degrees 33 minutes 41 seconds W.

Oe—0 to 1 inch; partially decomposed hardwood and evergreen litter.
A—1 to 5 inches; brown (10YR 4/3) sandy loam; moderate medium granular structure; very friable; many fine and medium and common coarse roots; strongly acid; clear smooth boundary.
BE—5 to 7 inches; dark yellowish brown (10YR 4/6) sandy loam; weak fine granular structure; very friable; many fine and medium and few coarse roots; strongly acid; clear wavy boundary.
Bt1—7 to 19 inches; yellowish red (5YR 5/6) clay; common medium distinct strong brown (7.5YR 5/8) mottles; strong medium subangular blocky structure; friable; few fine and medium roots; many distinct clay films on faces of peds and in pores; strongly acid; abrupt smooth boundary.
Bt2—19 to 29 inches; yellowish red (5YR 5/8) clay; many medium prominent brownish yellow (10YR 6/8) mottles; moderate medium subangular blocky structure; friable; few fine roots; many distinct clay films on faces of peds and in pores; very strongly acid; abrupt smooth boundary.

BCt—29 to 38 inches; yellowish red (5YR 5/8) sandy clay loam; many coarse prominent yellowish brown (10YR 5/8) mottles; weak medium subangular blocky structure; friable; few fine roots; common faint yellowish red (5YR 5/6) clay films on faces of peds; very strongly acid; abrupt smooth boundary.

C1—38 to 58 inches; brownish yellow (10YR 6/8) sandy loam; common medium prominent yellowish red (5YR 5/8) mottles; massive; friable; very strongly acid; clear smooth boundary.

C2—58 to 78 inches; brownish yellow (10YR 6/8) loamy sand; few medium prominent yellowish red (5YR 5/8) mottles; massive; friable; very strongly acid.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to bedrock: More than 60 inches
Size and kind of rock fragments: Channers and pebbles of sandstone and shale
Reaction: Very strongly acid to moderately acid in unlimed areas
A horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—3 or 4
Texture—sandy loam or loam
Content of rock fragments—0 to 15 percent
BE horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 6
Texture—sandy loam or loam
Content of rock fragments—0 to 15 percent
Bt horizon:
Hue—2.5YR to 7.5YR
Value—4 to 6
Chroma—6 to 8
Mottles—(if they occur) in shades of red, yellow, or brown
Texture—clay, sandy clay, sandy clay loam, or clay loam
Content of rock fragments—0 to 15 percent
BCt horizon:
Hue—2.5YR to 7.5YR
Value—4 or 5
Chroma—6 to 8
Mottles—in shades of red, yellow, or brown
Texture—sandy clay loam, clay loam, or clay
Content of rock fragments—0 to 15 percent
C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—6 to 8
Mottles—in shades of red, yellow, or brown
Texture—sandy loam, loam, or loamy sand
Content of rock fragments—0 to 15 percent

Coile Series

Depth class: Shallow to moderately deep
Drainage class: Well drained
Permeability: Moderate or moderately slow
Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Broad ridge crests and side slopes in valleys
Parent material: Residuum derived from tilted and fractured, fissile, acid shale
Slope range: 2 to 60 percent

Taxonomic class: Loamy-skeletal, mixed, semiactive, thermic, shallow Ruptic-Ultic Dystrudepts

Associated soils: Corryton, Apison, and Townley soils

Typical Pedon

Coile silt loam, 5 to 12 percent slopes, eroded; 2.7 miles south of the intersection of State Route 30 with U.S. Highway 11, about 1.9 miles west on County Road 114 (Coile Road), 875 feet southwest of County Road 114, and 875 feet due north of a rest area along Interstate 75, in a pastured area; USGS Riceville topographic quadrangle; lat. 35 degrees 25 minutes 57 seconds N. and long. 84 degrees 41 minutes 16 seconds W.

Ap—0 to 3 inches; dark brown (10YR 4/3) silt loam; weak fine granular structure; very friable; many fine roots; 10 percent soft shale channers; neutral; abrupt smooth boundary.

Bw/Bt—3 to 10 inches; 60 percent dark yellowish brown (10YR 4/6) very channery silt loam (Bw part); weak fine subangular blocky structure; friable; few fine roots; 60 percent soft shale channers with common prominent coatings of manganese; strongly acid; 40 percent strong brown (7.5YR 5/6) channery clay (Bt part); common medium prominent light brownish yellow (2.5Y 6/4) relict mottles; friable; common fine roots; few faint clay films on faces of peds; 30 percent soft shale channers with common prominent coatings of manganese; moderately acid; gradual wavy boundary.

C—10 to 18 inches; strong brown (7.5YR 5/6) channery clay; many medium prominent light brownish yellow (2.5Y 6/4) relict mottles from soft

shale; massive; friable; very few fine and very fine roots; common coarse prominent very dark brown (10YR 2/2) accumulations of manganese; 20 percent soft shale channers; strongly acid; abrupt irregular boundary.

Cr—18 to 24 inches; thinly bedded, light olive brown and light yellowish brown, tilted shale; many coatings of manganese and common strong brown coatings of clay on rock faces; dip of the bedrock ranges from about 15 to 40 degrees within the profile; a few 1- to 3-inch seams of C material extend between shale layers.

Range in Characteristics

Thickness of the solum: 9 to 20 inches
Depth to soft bedrock: 9 to 20 inches
Size and kind of rock fragments: Channers and pebbles of shale and siltstone
Reaction: Very strongly acid to moderately acid in unlimed areas
Ap horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 or 4
Texture of the fine-earth fraction—silt loam or loam
Content of rock fragments—5 to 30 percent
Bw/Bt horizon:
Hue—7.5YR to 2.5Y
Value—4 or 5
Chroma—4 to 6
Texture of the fine-earth fraction—silt loam or loam (Bw part); clay or clay loam (Bt part)
Content of rock fragments—25 to 75 percent
C horizon:
Hue—5YR to 2.5Y
Value—3 to 6
Chroma—3 to 8
Texture of the fine-earth fraction—clay, clay loam, or loam
Content of rock fragments—15 to 80 percent
Cr horizon:
Brown to olive, tilted, soft, acid shale

Collegedale Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Ridge crests and side slopes
Parent material: Residuum derived from limestone and dolomite
Slope range: 5 to 12 percent
Taxonomic class: Fine, mixed, semiactive, thermic Typic Paleudults
Associated soils: Fullerton, Dewey, and Waynesboro soils

Typical Pedon

Collegedale silt loam, 5 to 12 percent slopes, eroded; in Polk County, Tennessee; 2.2 miles south of Old Fort on U.S. Highway 411, about 0.2 mile east of U.S. Highway 411 on Ladd Springs Road, 125 feet south of the road:

Ap—0 to 6 inches; yellowish brown (10YR 5/4) silt loam; moderate medium granular structure; friable; few fine roots; 10 percent chert gravel; slightly acid; abrupt smooth boundary.

Bt1—6 to 17 inches; yellowish red (5YR 5/6) clay; moderate medium subangular blocky structure; firm; common distinct clay films on faces of peds; few fine roots; 2 percent chert gravel; slightly acid; clear smooth boundary.

Bt2—17 to 26 inches; strong brown (7.5YR 5/8) clay; common medium distinct yellowish red (5YR 5/6) mottles; moderate medium subangular blocky structure; firm; common distinct clay films on faces of peds; few fine roots; 2 percent chert gravel; moderately acid; clear smooth boundary.

Bt3—26 to 38 inches; yellowish red (5YR 5/6) clay; common medium distinct strong brown (7.5YR 5/8) and brownish yellow (10YR 6/8) and few medium distinct pale brown (10YR 6/3) mottles; moderate medium angular and subangular blocky structure; firm; common distinct clay films of faces of peds; few fine roots; 5 percent chert gravel; strongly acid; gradual smooth boundary.

Bt4—38 to 45 inches; yellowish red (5YR 5/6) clay; many medium distinct strong brown (7.5YR 5/8) and white (10YR 8/2) mottles; moderate medium angular and subangular blocky structure; firm; common distinct clay films on faces of peds; 5 percent chert gravel; strongly acid; gradual wavy boundary.

Bt5—45 to 53 inches; mottled yellowish red (5YR 5/6), yellowish brown (10YR 5/6), strong brown (7.5YR 5/8), and white (10YR 8/2) silty clay; moderate medium angular and subangular blocky structure; firm; few faint clay films on faces of peds; 5 percent chert gravel; strongly acid; gradual wavy boundary.

Bt6—53 to 65 inches; yellowish red (5YR 5/6) clay; many medium distinct white (10YR 8/2) and yellowish brown (10YR 5/6) mottles; moderate medium angular and subangular blocky structure with a few seams of relic rock structure that is

massive; firm; few faint clay films on faces of peds; 5 percent chert gravel; strongly acid.

Range in Characteristics

Thickness of the solum: More than 60 inches
Depth to bedrock: More than 60 inches
Size and kind of rock fragments: Pebbles of chert
Reaction: Very strongly acid or strongly acid in unlimed areas
Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—3 or 4
Texture—silt loam
Content of rock fragments—0 to 10 percent
Bt horizon:
Hue—2.5YR to 7.5YR
Value—4 or 5
Chroma—6 or 8
Mottles—in shades of brown or gray and are most prevalent below a depth of about 25 inches; some subhorizons are mottled and have no dominant matrix color
Texture—clay or silty clay
Content of rock fragments—0 to 10 percent

Corryton Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Broad ridge crests and side slopes
Parent material: Residuum derived from acid shale
Slope range: 2 to 12 percent

Taxonomic class: Fine, mixed, semiactive, thermic Typic Hapludults

Associated soils: Apison, Coile, and Townley soils

Typical Pedon

Corryton silt loam, in an area of Corryton-Townley complex, 2 to 5 percent slopes, eroded; 5.75 miles northeast of the McMinn County Courthouse on State Route 307, about 1 mile east on County Road 405 to Isbell Cemetery, 400 feet northeast of Isbell Cemetery, in a hayfield; USGS Englewood topographic quadrangle; lat. 35 degrees 29 minutes 16 seconds N. and long. 84 degrees 29 minutes 46 seconds W.

Ap—0 to 9 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium subangular blocky structure; friable; many fine roots; 2 percent shale gravel; many manganese stains; slightly acid; abrupt smooth boundary.

Bt1—9 to 17 inches; strong brown (7.5YR 5/8) silty clay loam; moderate medium subangular blocky structure; friable; common fine roots; many distinct clay films on faces of peds; 2 percent shale gravel; many manganese stains; moderately acid; abrupt smooth boundary.

Bt2—17 to 26 inches; yellowish brown (10YR 5/8) silty clay; many medium distinct pale yellow (2.5Y 7/4) and many fine prominent yellowish red (5YR 5/6) mottles; moderate medium subangular blocky structure; friable; many distinct clay films on faces of peds; 2 percent shale gravel; many manganese stains; moderately acid; clear wavy boundary.

Bt3—26 to 41 inches; yellowish brown (10YR 5/8) clay; many medium distinct pale yellow (2.5Y 7/4) and many medium prominent yellowish red (5YR 5/6) mottles; weak medium subangular blocky structure; friable; common distinct clay films on faces of peds; 2 percent shale gravel; common manganese stains; moderately acid; clear smooth boundary.

C—41 to 75 inches; brownish yellow (10YR 6/8) channery silty clay loam; many medium prominent pale yellow (2.5Y 7/4) and common medium prominent yellowish red (5YR 5/6) mottles; firm; massive with relict rock structure; firm; few faint clay films along bedding planes; 15 percent shale channers; very strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 60 inches
Depth to bedrock: More than 60 inches
Size and kind of rock fragments: Channers and pebbles of siltstone and shale
Reaction: Very strongly acid to moderately acid in unlimed areas
Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—4 to 6
Texture—silt loam or loam
Content of rock fragments—2 to 10 percent
Bt horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—6 to 8
Mottles—(if they occur) in shades of red or yellow
Texture—clay loam, silty clay, silty clay loam, or clay
Content of rock fragments—2 to 15 percent

Figure 12.—A typical profile of an Apison soil. Soft, sandy shale and loamy soil material are between depths of 22 and 42 inches. Depth is marked in feet.

Figure 13.—A typical profile of a Dewey soil. The Dewey soils, which are very deep and well drained, have few limitations. Depth is marked in feet.

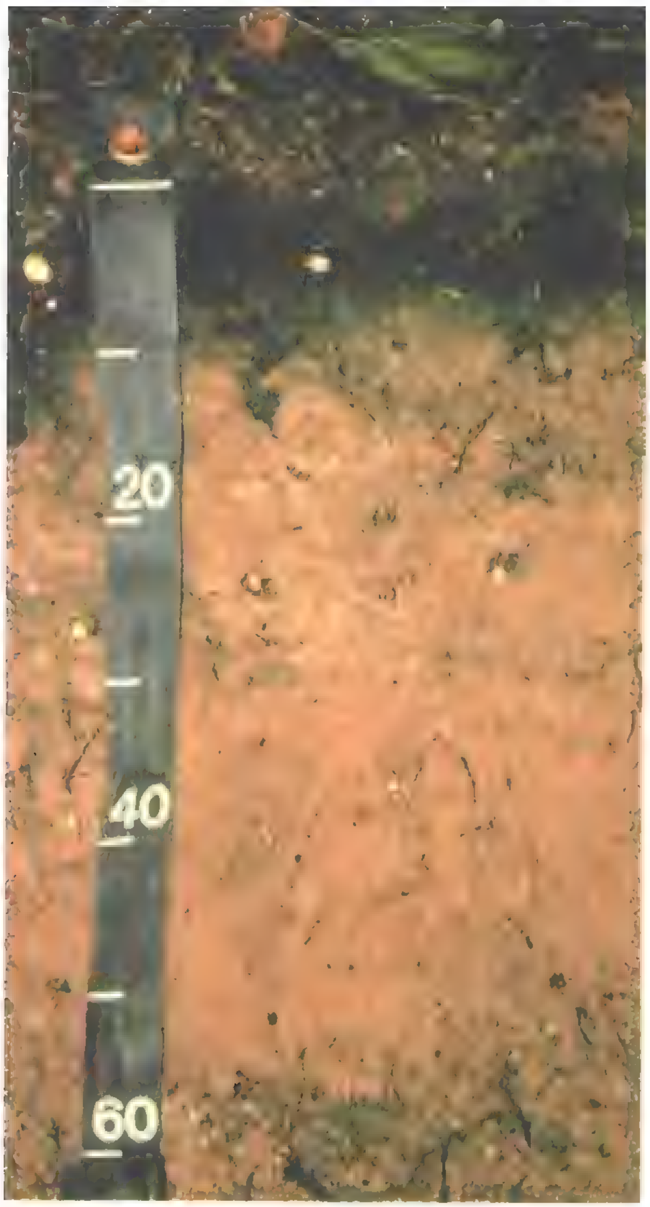

Figure 14.—A typical profile of a McCamy soil. The McCamy soils, which are moderately deep and have a moderate available water capacity, have hard arkosic sandstone bedrock at a depth of 51 to 102 centimeters (20 to 40 inches). Depth is marked in centimeters.

Figure 15.—A typical profile of a Red Hills soil. The Red Hills soils, which are moderately deep, have a soft bedrock contact at a depth of 51 to 102 centimeters (20 to 40 inches). Depth is marked in centimeters.

Figure 16.—A typical profile of a Steekee soil. The Steekee soils, which are shallow, have a soft bedrock contact within a depth of 20 inches. Available water capacity is very low. Depth is marked in feet.

C horizon:
Hue—7.5YR or 10YR
Value—5 to 7
Chroma—6 to 8
Mottles—(if they occur) in shades of red or yellow
Texture of the fine-earth fraction—silty clay loam, silty clay, or clay loam
Content of rock fragments—5 to 30 percent

Decatur Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Ridge crests and side slopes
Parent material: Old alluvium or colluvium that overlies residuum derived from limestone or dolomite
Slope range: 2 to 20 percent

Taxonomic class: Fine, kaolinitic, thermic Rhodic Paleudults

Associated soils: Dewey, Waynesboro, and Fullerton soils in landscape positions similar to those of the Decatur soils

Typical Pedon

Decatur silt loam, 2 to 5 percent slopes, eroded; in Polk County, Tennessee; 500 feet east of the intersection of Conasauga River and Old Federal Road, 1,000 feet south of Old Patty Road from Old Columbus Road, 300 feet east in a field:

Ap—0 to 6 inches; dark reddish brown (5YR 3/4) silt loam; strong medium granular structure; friable; common fine roots; 10 percent quartz and granite pebbles; slightly acid; abrupt smooth boundary.
Bt1—6 to 15 inches; dark red (10R 3/6) clay; moderate medium and fine subangular blocky structure; friable; common fine roots; common distinct clay films on faces of peds; 5 percent quartz and granite pebbles and cobbles; moderately acid; gradual smooth boundary.
Bt2—15 to 28 inches; dark red (10R 3/6) clay; moderate medium subangular blocky structure; friable; common fine roots; common distinct clay films on faces of peds; 5 percent quartz and granite pebbles and cobbles; strongly acid; gradual smooth boundary.
Bt3—28 to 50 inches; dark red (10R 3/6) clay; moderate medium angular blocky and subangular blocky structure; firm; few fine roots; common distinct clay films on faces of peds; 5 percent

quartz and granite pebbles and cobbles; strongly acid; gradual smooth boundary.

Bt4—50 to 67 inches; dark red (2.5YR 3/6) clay; moderate medium angular blocky and subangular blocky structure; firm; common distinct clay films on faces of peds; 5 percent quartz and granite pebbles and cobbles; strongly acid.

Range in Characteristics

Thickness of the solum: More than 72 inches
Depth to bedrock: More than 72 inches
Size and kind of rock fragments: Rounded pebbles and cobbles of igneous, metamorphic, and sedimentary rocks
Reaction: Very strongly acid to moderately acid in unlimed areas
Ap horizon:
Hue—2.5YR or 5YR
Value—2 or 3
Chroma—2 to 4
Texture—silt loam
Content of rock fragments—0 to 10 percent
Bt horizon:
Hue—10R or 2.5YR
Value—3
Chroma—4 to 6
Texture—clay or silty clay
Content of rock fragments—0 to 10 percent

Dewey Series

Depth class: Very deep (fig. 13)
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Ridge crests and side slopes
Parent material: Old alluvium underlain by residuum derived from limestone or dolomite
Slope range: 2 to 25 percent

Taxonomic class: Fine, kaolinitic, thermic Typic Paleudults

Associated soils: Decatur, Fullerton, Bradyville, and Waynesboro soils

Typical Pedon

Dewey silt loam, 2 to 5 percent slopes; 1.4 miles south of Niota on U.S. Highway 11, about 875 feet west of U.S. Highway 11, in a pastured area; USGS Niota topographic quadrangle; lat. 35 degrees 30 minutes 10 seconds N. and long. 84 degrees 34 minutes 11 seconds W.

Ap—0 to 9 inches; dark reddish brown (5YR 3/4) silt loam; weak medium and coarse granular structure; very friable; many fine roots; 2 percent subrounded chert pebbles; slightly acid; abrupt smooth boundary.

Bt1—9 to 22 inches; red (2.5YR 4/6) clay; common medium prominent dark reddish brown (5YR 3/4) mottles; moderate medium and coarse subangular blocky structure; friable; common very fine and fine roots; common fine pores; common distinct clay films on faces of peds and in pores; 5 percent subrounded sandstone pebbles; slightly acid; clear smooth boundary.

2Bt2—22 to 35 inches; red (2.5YR 4/8) clay; strong medium and coarse subangular blocky structure; friable; common very fine roots; common very fine pores; common prominent clay films on faces of peds and in pores; 2 percent subrounded chert pebbles; moderately acid; clear smooth boundary.

2Bt3—35 to 43 inches; red (2.5YR 5/6) clay; common medium prominent strong brown (7.5YR 5/6) mottles; strong medium subangular blocky structure; friable; common very fine roots; common very fine pores; common prominent clay films on faces of peds and in pores; 2 percent angular chert pebbles; very strongly acid; clear smooth boundary.

2Bt4—43 to 61 inches; yellowish red (5YR 5/6) clay; common medium prominent reddish yellow (7.5YR 6/8) mottles; moderate medium and coarse angular blocky structure; friable; few very fine roots; common very fine pores; common prominent clay films on faces of peds and in pores; 2 percent angular chert pebbles; very strongly acid; clear smooth boundary.

2Bt5—61 to 72 inches; yellowish red (5YR 5/6) clay; many medium prominent reddish yellow (7.5YR 6/8) mottles; moderate medium and coarse angular blocky structure; friable; common very fine pores; common prominent clay films on faces of peds and in pores; 5 percent angular chert pebbles; very strongly acid.

Range in Characteristics

Thickness of the solum: More than 60 inches
Depth to bedrock: More than 60 inches
Size and kind of rock fragments: Pebbles of chert and sandstone
Reaction: Very strongly acid to moderately acid in unlimed areas
Ap horizon:
Hue—5YR or 7.5YR
Value—3 to 5
Chroma—3 to 6

Texture—silt loam, silty clay loam, or loam
Content of rock fragments—0 to 5 percent

Bt horizon:
Hue—2.5YR or 5YR
Value—3 to 5
Chroma—6 or 8
Mottles—in shades of yellow or brown
Texture—clay or silty clay; some pedons have silty clay loam or clay loam in the upper 5 inches of the horizon
Content of rock fragments—0 to 10 percent

Emory Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Flood plains, narrow drainageways, and upland depressions
Parent material: Local alluvium overlying a buried soil
Slope range: 0 to 4 percent

Taxonomic class: Fine-silty, siliceous, active, thermic Fluventic Humic Dystrudepts

Associated soils: Dewey, Fullerton, Waynesboro, and Dewey soils on adjacent uplands

Typical Pedon

Emory silt loam, 0 to 4 percent slopes, occasionally flooded; in Polk County, Tennessee; 1 mile east of Old Patty Road, 0.3 mile east of the intersection of Rahts Lane and East Patty Road, 300 feet north of the road:

Ap—0 to 8 inches; dark reddish brown (5YR 3/4) silt loam; moderate medium granular structure; friable; many fine and medium roots; moderately acid; clear smooth boundary.

Bw—8 to 23 inches; dark reddish brown (5YR 3/4) silty clay loam; weak medium subangular blocky structure; friable; common fine roots; moderately acid; clear smooth boundary.

Ab—23 to 32 inches; dark reddish brown (5YR 3/3) silt loam; weak medium granular structure; friable; few fine roots; moderately acid; clear smooth boundary.

Btb1—32 to 38 inches; reddish brown (5YR 4/4) silty clay loam; weak medium subangular blocky structure; friable; few faint clay films on faces of some peds; few fine roots; strongly acid; gradual smooth boundary.

Btb2—38 to 46 inches; strong brown (7.5YR 5/6) silty clay loam; moderate medium subangular blocky structure; friable; few faint clay films on faces of some peds; strongly acid; gradual smooth boundary.

Btb3—46 to 60 inches; strong brown (7.5YR 5/6) clay; moderate medium subangular blocky structure; firm; common distinct clay films on faces of some peds; strongly acid.

Range in Characteristics

Thickness of local alluvium over the buried soil: 20 to 34 inches
Depth to bedrock: More than 60 inches
Size and kind of rock fragments: Pebbles and cobbles of various sedimentary rocks
Reaction: Strongly acid or moderately acid in unlimed areas

Ap horizon:
Hue—5YR or 7.5YR
Value—3
Chroma—2 to 4
Texture—silt loam
Content of rock fragments—0 to 10 percent

Bw horizon:
Hue—5YR or 7.5YR
Value—3 to 5
Chroma—3 to 6
Texture of the fine-earth fraction—silt loam or silty clay loam
Content of rock fragments—0 to 10 percent

Ab horizon:
Hue—5YR or 7.5YR
Value—3 or 4
Chroma—2 to 4
Texture—silt loam or silty clay loam
Content of rock fragments—0 to 10 percent

Btb horizon:
Hue—2.5YR to 7.5YR
Value—4 or 5
Chroma—3 to 6
Mottles—(if they occur) in shades of brown, yellow, or red
Texture—silty clay loam, clay loam, or clay
Content of rock fragments—0 to 10 percent

Etowah Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Stream terraces and footslopes
Parent material: Old alluvium or colluvium derived from sandstone, shale, and limestone

Slope range: 0 to 12 percent

Taxonomic class: Fine-loamy, siliceous, semiactive, thermic Typic Paleudults

Associated soils: Waynesboro, Dewey, and Bradyville soils

Typical Pedon

Etowah loam, 2 to 5 percent slopes; 5.7 miles west on County Road 20 from the intersection with U.S. Highway 11 in Calhoun, 1.3 miles south on County Road 4, about 0.6 mile south on Shelton Cemetery Road, 500 feet west in a hayfield; USGS Charleston topographic quadrangle; lat. 35 degrees 19 minutes 48 seconds N. and 84 degrees 49 minutes 36 seconds W.

Ap—0 to 10 inches; brown (7.5YR 4/4) loam; moderate medium granular structure; friable; many fine roots; neutral; clear smooth boundary.
Bt1—10 to 34 inches; yellowish red (5YR 4/6) clay loam; moderate medium subangular blocky structure; friable; common fine roots; common distinct clay films on faces of peds and in pores; few fine manganese concretions; few fine flakes of mica; moderately acid; clear smooth boundary.
Bt2—34 to 57 inches; yellowish red (5YR 5/8) clay loam; moderate medium subangular blocky structure; friable; few fine roots; common distinct clay films on faces of peds and in pores; strongly acid; gradual smooth boundary.
Bt3—57 to 70 inches; yellowish red (5YR 5/8) clay loam; common medium distinct strong brown (7.5YR 5/6) mottles; moderate medium subangular blocky structure; friable; common distinct clay films on faces of peds and in pores; few fine flakes of mica; strongly acid.

Range in Characteristics

Thickness of the solum: More than 60 inches
Depth to bedrock: More than 60 inches
Size and kind of rock fragments: Pebbles of sandstone, quartzite, and chert
Reaction: Very strongly acid to moderately acid in unlimed areas
Ap horizon:
Hue—7.5YR or 10YR
Value—3 or 4
Chroma—2 to 4
Texture—loam or silt loam
Content of rock fragments—0 to 10 percent
Bt horizon:
Hue—2.5YR to 7.5YR
Value—4 or 5
Chroma—6 or 8
Mottles—in shades of red, yellow, or brown
Texture—clay loam, silty clay loam, or, in the lower part, clay
Content of rock fragments—0 to 10 percent

Fullerton Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Ridge crests, shoulder slopes, backslopes, and side slopes
Parent material: Residuum derived from cherty limestone or dolomite; some pedons have 1 to 2 feet of colluvium overlying residuum
Slope range: 2 to 60 percent

Taxonomic class: Fine, kaolinitic, thermic Typic Paleudults

Associated soils: Dewey and Bodine soils in landscape positions similar to those of the Fullerton soils; Minvale soils on footslopes

Typical Pedon

Fullerton gravelly silt loam, 25 to 60 percent slopes, eroded; 2.5 miles north of Niota on U.S. Highway 11, about 0.4 mile east on County Road 351, about 0.7 mile south through a loblolly pine plantation to a clearcut, on the upper part of a very steep side slope; USGS Niota topographic quadrangle; lat. 35 degrees 32 minutes 03 seconds N. and long. 84 degrees 30 minutes 47 seconds W.

Oi—1 inch to 0; slightly decomposed hardwood leaves, twigs, and roots.
Ap—0 to 5 inches; brown (10YR 4/3) gravelly silt loam; moderate medium granular structure; friable; many fine and medium roots; 15 percent chert gravel; slightly acid; clear smooth boundary.
BE—5 to 11 inches; strong brown (7.5YR 5/6) gravelly silt loam; weak fine subangular blocky structure; friable; common fine and medium roots; 15 percent chert gravel; strongly acid; clear smooth boundary.
Bt1—11 to 19 inches; strong brown (7.5YR 5/8) gravelly silty clay loam; weak medium subangular blocky structure; friable; few fine and medium roots; few faint clay films on faces of peds and in pores; 25 percent chert gravel; very strongly acid; clear smooth boundary.
Bt2—19 to 33 inches; strong brown (7.5YR 5/6) gravelly clay; few medium distinct yellowish red (5YR 5/8) mottles; strong medium subangular

blocky structure; friable; few fine roots; common distinct yellowish red (5YR 5/8) and common faint strong brown (7.5YR 5/8) clay films on faces of peds and in pores; 25 percent chert gravel; very strongly acid; clear smooth boundary.

Bt3—33 to 44 inches; yellowish red (5YR 5/6) very gravelly clay; few medium distinct strong brown (7.5YR 5/8) mottles; moderate fine and medium subangular blocky structure; friable; very few fine roots; many prominent clay films on faces of peds and in pores; 40 percent chert gravel; very strongly acid; gradual smooth boundary.

Bt4—44 to 63 inches; yellowish red (5YR 5/6) extremely gravelly clay; common medium prominent brownish yellow (10YR 6/6) mottles; moderate fine angular blocky structure; firm; many prominent clay films on faces of peds and in pores; 70 percent chert gravel; very strongly acid.

Range in Characteristics

Thickness of the solum: More than 60 inches
Depth to bedrock: More than 60 inches
Size and kind of rock fragments: Pebbles and cobbles of chert
Reaction: Very strongly acid or strongly acid in unlimed areas
Ap horizon:
Hue—7.5YR or 10YR
Value—3 to 6
Chroma—2 to 4
Texture of the fine-earth fraction—silt loam, clay loam, or loam
Content of rock fragments—10 to 25 percent
BE horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 6
Mottles—(if they occur) in shades of red, yellow, or brown
Texture of the fine-earth fraction—silt loam or loam
Content of rock fragments—10 to 35 percent
Bt horizon:
Hue—2.5YR or 5YR; the upper part may have hue of 7.5YR
Value—4 or 5
Chroma—4 to 8
Mottles—in shades of brown, yellow, or red
Texture of the fine-earth fraction—clay or silty clay; the upper part may be silty clay loam or clay loam
Content of rock fragments—10 to 45 percent (ranges from 15 to 35 percent in the control section and from 10 to 70 percent below a depth of about 40 inches)

Hamblen Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate
Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Flood plains and drainageways
Parent material: Mixed alluvium derived from limestone, shale, and sandstone
Slope range: 0 to 3 percent

Taxonomic class: Fine-loamy, siliceous, semiactive, thermic Fluvaquentic Eutrudepts

Associated soils: Dewey, Fullerton, Bodine, Corryton, Townley, and Coile soils on adjacent uplands

Typical Pedon

Hamblen silt loam, occasionally flooded; 4 miles west on State Highway 30 from the intersection of State Highway 30 and Interstate 75, about 1.9 miles north on County Road 180, about 180 feet north-northeast on a flood plain on the west side of Rogers Creek; USGS Tranquillity topographic quadrangle; lat. 35 degrees 30 minutes 16 seconds N. and long. 84 degrees 41 minutes 01 seconds W.

Ap—0 to 7 inches; brown (10YR 5/3) silt loam; moderate medium granular structure; very friable; many fine roots; slightly acid; clear smooth boundary.

Bw1—7 to 14 inches; yellowish brown (10YR 5/4) silt loam; common medium distinct brown (10YR 4/3) mottles; weak medium subangular blocky structure; friable; common fine roots; few fine soft accumulations of manganese on faces of peds; slightly acid; clear smooth boundary.

Bw2—14 to 21 inches; light olive brown (2.5Y 5/4) silt loam; common medium prominent brown (10YR 4/3) mottles; weak fine subangular blocky structure; friable; common fine roots; few fine soft accumulations of manganese on faces of peds; common medium prominent grayish brown (2.5Y 5/2) iron depletions in the matrix; slightly acid; clear smooth boundary.

Bw3—21 to 30 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; friable; few fine roots; few fine soft accumulations of manganese on faces of peds; few fine dark concretions in the matrix; common medium prominent grayish brown (10YR 5/2) iron depletions throughout; slightly acid; clear smooth boundary.

C1—30 to 37 inches; yellowish brown (10YR 5/8) loam; common medium distinct yellowish brown (10YR 5/4) mottles; massive; friable; few fine roots; common medium accumulations of manganese; common fine prominent olive gray (5Y 5/2) iron depletions throughout; moderately acid; gradual smooth boundary.

C2—37 to 52 inches; mottled, yellowish brown (10YR 5/4) loam; many medium brown (10YR 4/3) and few medium prominent strong brown (7.5YR 5/6) mottles; massive; friable; 2 percent subrounded chert pebbles; common medium accumulations of manganese in the matrix; many fine and medium grayish brown (2.5Y 5/2) iron depletions throughout; moderately acid; gradual wavy boundary.

Cg—52 to 60 inches; gray (N 6/0) very gravelly clay; common medium prominent strong brown (7.5YR 5/6) mottles; massive; firm; 40 percent subrounded chert pebbles; many coarse accumulations of manganese in the matrix; moderately acid.

Range in Characteristics

Thickness of the solum: 20 to 55 inches
Depth to bedrock: More than 60 inches
Depth to seasonal high water table: 21 to 36 inches
Size and kind of rock fragments: Pebbles of chert, limestone, and, in places, sandstone and shale
Reaction: Strongly acid to neutral in unlimed areas
Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—2 to 4
Texture—silt loam or loam
Content of rock fragments—0 to 10 percent
Bw horizon:
Hue—7.5YR to 2.5Y
Value—4 or 5
Chroma—3 to 6
Mottles—in shades of brown, yellow, or gray
Texture—silt loam, silty clay loam, loam, or clay loam
Content of rock fragments—0 to 10 percent
C horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Mottles—in shades of brown, yellow, red, or gray; some horizons are mottled and have no dominant matrix color
Texture of the fine-earth fraction—silt loam, silty clay loam, loam, or clay loam
Content of rock fragments—0 to 40 percent below a depth of 40 inches
Cg horizon:
Hue—10YR to 5Y or neutral
Value—4 to 6
Chroma—0 to 2
Mottles—in shades of brown, yellow, or red
Texture of the fine-earth fraction—silt loam, silty clay loam, loam, clay loam, silty clay, or clay
Content of rock fragments—0 to 50 percent

Harmiller Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Blue Ridge
Landscape position: Ridge crests
Parent material: Residuum derived from thinly bedded arkosic sandstone and sandy shale
Slope range: 5 to 12 percent

Taxonomic class: Fine-loamy, siliceous, semiactive, mesic Typic Hapludults

Associated soils: McCamy, Unicoi, and Wallen soils on adjacent uplands; Keener soils in saddles and on the lower parts of the slopes

Typical Pedon

Harmiller loam, 5 to 12 percent slopes; 9 miles east of Englewood on State Route 39, about 5.5 miles southwest on USDA Forest Service Road 297, about 25 feet north from the road, in a mixed forest; USGS Mecca topographic quadrangle; lat. 35 degrees 19 minutes 45 seconds N. and long. 84 degrees 26 minutes 16 seconds W.

Oi—1 inch to 0; slightly decomposed hardwood leaf litter.

A—0 to 5 inches; brown (10YR 5/3) loam; moderate medium granular structure; friable; many fine, common medium, and few coarse roots; strongly acid; clear smooth boundary.

Bt1—5 to 14 inches; yellowish brown (10YR 5/6) clay loam; common medium faint brownish yellow (10YR 6/6) mottles; moderate medium subangular blocky structure; friable; few fine roots; common distinct clay films on faces of peds; 5 percent shale gravel; strongly acid; clear wavy boundary.

Bt2—14 to 23 inches; brownish yellow (10YR 6/6) clay loam; common fine distinct strong brown (7.5YR 5/6) and common fine distinct light gray (10YR 7/2) mottles; moderate medium subangular blocky structure; friable; few fine roots; common distinct

clay films on faces of peds; 5 percent shale gravel; very strongly acid; clear wavy boundary.

Cr—23 to 30 inches; soft, sandy shale or thinly bedded arkosic sandstone; 15 percent brownish yellow (10YR 6/6) clay in cracks and crevasses.

Range in Characteristics

Thickness of the solum: 15 to 39 inches
Depth to soft bedrock: 20 to 40 inches
Size and kind of rock fragments: Pebbles and cobbles of arkosic sandstone
Reaction: Extremely acid to moderately acid
A horizon:
Hue—10YR
Value—4 or 5
Chroma—3 or 4
Texture—loam
Content of rock fragments—0 to 10 percent
Bt horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—4 to 8
Mottles—in shades of red, brown, or yellow
Texture of the fine-earth fraction—clay loam, loam, or sandy clay loam
Content of rock fragments—2 to 35 percent
Cr horizon:
Soft, sandy shale or thinly bedded, fractured arkosic sandstone

Keener Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Blue Ridge
Landscape position: Lower side slopes and footslopes
Parent material: Colluvium
Slope range: 3 to 50 percent

Taxonomic class: Fine-loamy, siliceous, semiactive, mesic Typic Hapludults

Associated soils: Lostcove soils in landscape positions similar to those of the Keener soils

Typical Pedon

Keener gravelly sandy loam, in an area of Keener-Lostcove complex, 35 to 50 percent slopes, very stony; 7.3 miles east of Englewood on State Route 39 to the intersection with State Route 310 (Mecca Pike), 2 miles west on State Route 310, about 875 feet south on County Road 876, about 1.75 miles southeast on a old logging road, on a northwest-facing roadbank in a mixed forest; USGS Mecca topographic quadrangle; lat. 35 degrees 20 minutes 23 seconds N. and long. 84 degrees 26 minutes 56 seconds W.

A—0 to 3 inches; brown (10YR 4/3) gravelly sandy loam; weak fine granular structure; very friable; common fine and few medium roots; 15 percent arkosic sandstone gravel; very strongly acid; abrupt smooth boundary.

Bt1—3 to 15 inches; brownish yellow (10YR 6/6) gravelly sandy clay loam; weak fine subangular blocky structure; friable; common fine and few medium roots; few faint clay films on faces of peds; 20 percent arkosic sandstone gravel; very strongly acid; clear smooth boundary.

Bt2—15 to 36 inches; yellowish brown (10YR 5/8) gravelly clay loam; moderate medium subangular blocky structure; friable; few fine roots; common faint clay films on faces of peds; 30 percent arkosic sandstone gravel; very strongly acid; clear smooth boundary.

Bt3—36 to 60 inches; strong brown (7.5YR 5/8) gravelly sandy clay loam; common medium faint yellowish red (5YR 5/6) and common medium distinct brownish yellow (10YR 6/6) mottles; moderate fine subangular blocky structure; friable; few faint clay films on faces of peds; 25 percent sandstone pebbles and cobbles; few distinct soft dark accumulations of manganese; very strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 60 inches
Depth to bedrock: More than 60 inches
Size and kind of rock fragments: Pebbles and cobbles of arkosic sandstone
Reaction: Very strongly acid to moderately acid
A horizon:
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture of the fine-earth fraction—sandy loam or fine sandy loam
Content of rock fragments—2 to 35 percent
Bt horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—6 or 8
Mottles—(if they occur) in shades of red, brown, or yellow
Texture of the fine-earth fraction—clay loam or sandy clay loam
Content of rock fragments—5 to 30 percent

Lostcove Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Blue Ridge
Landscape position: Lower side slopes and footslopes
Parent material: Colluvium derived from arkosic sandstone
Slope range: 3 to 50 percent

Taxonomic class: Loamy-skeletal, siliceous, active, mesic Typic Hapludults

Taxadjunct statement: The Lostcove soils in McMinn County are taxadjuncts to the series because they have more clay in the lower part of the subsoil than is typical for the series. This difference, however, does not significantly affect use and management of the soils.

Associated soils: Keener soils in landscape positions similar to those of the Lostcove soils; Unicoi soils on the upper side slopes and ridges

Typical Pedon

Lostcove gravelly loam, 20 to 35 percent slopes, very stony; 1.75 miles east on State Route 310 from the intersection with U.S. Highway 411, about 0.2 mile south on County Road 491, about 1.6 miles southeast on County Road 475, about 2.1 miles south on County Road 880, about 250 feet east on County Road 875, about 1 mile south on an old logging road with gate, on a roadbank on the east side of the road; USGS Mecca topographic quadrangle; lat. 35 degrees 18 minutes 08 seconds N. and long. 84 degrees 29 minutes 20 seconds W.

Oi—1 inch to 0; slightly decomposed hardwood leaf litter and pine needles.

Oe—0 to 1 inch; moderately decomposed hardwood leaf litter and pine needles.

A—1 to 5 inches; yellowish brown (10YR 5/6) gravelly loam; moderate medium granular structure; very friable; common fine and few coarse roots; 30 percent arkosic sandstone gravel; extremely acid; clear smooth boundary.

Bt1—5 to 19 inches; yellowish brown (10YR 5/8) very cobbly clay loam; weak medium subangular blocky structure; friable; few coarse roots; few distinct patchy clay films on faces of peds; 40 percent arkosic sandstone cobbles and pebbles; very strongly acid; clear smooth boundary.

Bt2—19 to 50 inches; yellowish brown (10YR 5/8) very cobbly clay loam; common fine faint strong brown (7.5YR 5/8) mottles; weak medium subangular blocky structure; friable; few coarse and few fine roots; few distinct patchy clay films on faces of peds; 40 percent arkosic sandstone cobbles and pebbles; very strongly acid; clear smooth boundary.

2Bt3—50 to 76 inches; yellowish brown (10YR 5/8) very cobbly clay; many coarse distinct yellowish red (5YR 5/8) and common fine faint brownish yellow (10YR 6/8) mottles; moderate medium subangular blocky structure; friable; common distinct patchy clay films on faces of peds; 55 percent arkosic sandstone cobbles and pebbles; very strongly acid.

Range in Characteristics

Thickness of the solum: 30 to more than 60 inches
Depth to bedrock: More than 60 inches
Size and kind of rock fragments: Cobbles and pebbles of arkosic sandstone
Reaction: Extremely acid to strongly acid
A horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture of the fine-earth fraction—loam or fine sandy loam
Content of rock fragments—15 to 40 percent
Bt horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—6 to 8
Mottles—(if they occur) in shades of red, yellow, or brown
Texture of the fine-earth fraction—loam, sandy clay loam, or clay loam
Content of rock fragments—35 to 70 percent
2Bt horizon:
Hue—7.5YR to 2.5Y
Value—5 or 6
Chroma—6 to 8
Mottles—(if they occur) in shades of red, yellow, or brown
Texture of the fine-earth fraction—clay or clay loam
Content of rock fragments—35 to 75 percent

McCamy Series

Depth class: Moderately deep (fig. 14)
Drainage class: Well drained
Permeability: Moderately rapid
Physiographic area: Blue Ridge
Landscape position: Ridge crests and side slopes

Parent material: Residuum derived from sandstone and arkosic sandstone
Slope range: 12 to 25 percent

Taxonomic class: Fine-loamy, siliceous, semiactive, mesic Typic Hapludults

Associated soils: Harmiller and Unicoi soils

Typical Pedon

McCamy loam, 12 to 25 percent slopes, rocky; about 7.3 miles east of Englewood on State Route 39 to the intersection with State Route 310, northeast 1.7 miles on State Route 310, east 2.25 miles on USDA Forest Service Road 297, about 2 miles west to USDA Forest Service Road 11041, about 1,500 feet north on USDA Forest Service Road 11041, about 375 feet east of the road, in a mixed forest; USGS Mecca topographic quadrangle; lat. 35 degrees 20 minutes 02 seconds N. and long. 84 degrees 25 minutes 44 seconds W.

Oi—2 inches to 0; slightly decomposed leaves and twigs.
Oe—0 to 1 inch; moderately decomposed leaves and twigs.
Oa—1 to 3 inches; highly decomposed leaves, twigs, and roots.
A—3 to 5 inches; brown (10YR 4/3) loam; weak fine granular structure; very friable; many fine and medium and few coarse roots; extremely acid; abrupt smooth boundary.
BE—5 to 11 inches; yellowish brown (10YR 5/4) loam; weak medium subangular blocky structure; very friable; many fine and medium and few coarse roots; very strongly acid; gradual wavy boundary.
Bt1—11 to 20 inches; yellowish brown (10YR 5/8) clay loam; moderate medium subangular blocky structure; friable; common fine and medium and few coarse roots; few faint clay films on faces of peds and in pores; 5 percent sandstone cobbles; very strongly acid; gradual smooth boundary.
Bt2—20 to 24 inches; yellowish brown (10YR 5/8) clay loam; moderate medium subangular blocky structure; friable; few fine and medium roots; few distinct clay films on faces of peds and in pores; 5 percent sandstone cobbles; very strongly acid; abrupt smooth boundary.
Cr—24 to 31 inches; soft, brownish, fractured metasandstone that can be removed with difficulty using a spade.
R—31 to 34 inches; hard metasandstone.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to hard bedrock: 20 to 40 inches
Size and kind of rock fragments: Pebbles and cobbles of sandstone
Reaction: Extremely acid to strongly acid
A horizon:
Hue—10YR
Value—3 or 4
Chroma—3 or 4
Texture of the fine-earth fraction—loam or sandy loam
Content of rock fragments—0 to 30 percent
BE horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture of the fine-earth fraction—loam, fine sandy loam, or sandy loam
Content of rock fragments—0 to 30 percent
Bt horizon:
Hue—5YR to 10YR
Value—4 to 6
Chroma—4 to 8
Mottles—(if they occur) in shades of red, brown, or yellow
Texture of the fine-earth fraction—loam, sandy clay loam, or clay loam
Content of rock fragments—10 to 35 percent
Cr horizon:
Soft, rotten arkosic sandstone
R horizon:
Hard arkosic sandstone

Minvale Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Lower side slopes, footslopes, and fans
Parent material: Colluvium derived from cherty limestone
Slope range: 5 to 45 percent

Taxonomic class: Fine-loamy, siliceous, subactive, thermic Typic Paleudults

Associated soils: Bodine, Dewey, and Fullerton soils

Typical Pedon

Minvale gravelly silt loam, 5 to 12 percent slopes; in Polk County, Tennessee; 2.2 miles south of Old Fort on U.S. Highway 411, about 0.75 mile west of U.S. Highway 411 on Ladds Springs Road, 550 feet north of the road:

A—0 to 3 inches; dark grayish brown (10YR 4/2) gravelly silt loam; weak medium granular structure; very friable; common fine and medium roots; 20 percent chert gravel; strongly acid; abrupt smooth boundary.

E—3 to 13 inches; light yellowish brown (10YR 6/4) gravelly silt loam; moderate medium granular structure; friable; common fine and medium roots; 20 percent chert gravel; strongly acid; clear smooth boundary.

Bt1—13 to 21 inches; yellowish brown (10YR 5/6) gravelly silty clay loam; moderate medium subangular blocky structure; friable; few faint clay films on faces of peds; few fine and medium roots; 25 percent chert gravel; strongly acid; clear smooth boundary.

Bt2—21 to 28 inches; strong brown (7.5YR 5/8) gravelly silty clay loam; common fine distinct yellowish red (5YR 5/6) mottles; moderate medium subangular blocky structure; firm; few faint clay films on faces of peds; few fine and medium roots; 15 percent chert gravel; strongly acid; gradual smooth boundary.

Bt3—28 to 39 inches; mottled yellowish red (5YR 5/6), strong brown (7.5YR 5/8), and yellowish brown (10YR 5/6) gravelly clay; moderate medium subangular and angular blocky structure; firm; common distinct clay films on faces of peds; 20 percent chert gravel; strongly acid; gradual wavy boundary.

Bt4—39 to 68 inches; mottled yellowish red (5YR 5/6), strong brown (7.5YR 5/8), yellowish brown (10YR 5/6), and very pale brown (10YR 7/3) very gravelly clay; moderate medium subangular and angular blocky structure; firm; common distinct clay films on faces of peds; 35 percent chert gravel; strongly acid.

Range in Characteristics

Thickness of the solum: More than 60 inches
Depth to bedrock: More than 60 inches
Size and kind of rock fragments: Pebbles and cobbles of chert
Reaction: Very strongly acid or strongly acid in unlimed areas
A horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 to 4
Texture of the fine-earth fraction—silt loam or loam
Content of rock fragments—10 to 35 percent
E horizon: (if it occurs)
Hue—10YR
Value—5 or 6
Chroma—2 to 4
Texture of the fine-earth fraction—silt loam or loam
Content of rock fragments—15 to 35 percent
Bt horizon:
Hue—5YR to 10YR
Value—4 to 6
Chroma—4 to 8
Mottles—in shades of red, brown, yellow, or gray; no dominant matrix color in some pedons
Texture of the fine-earth fraction—silty clay loam, silty clay, or clay
Content of rock fragments—15 to 35 percent (ranges from 20 to 50 percent below a depth of about 40 inches)

Needmore Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately slow
Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Ridge crests and side slopes
Parent material: Residuum derived from calcareous shale
Slope range: 2 to 60 percent

Taxonomic class: Fine, mixed, active, mesic Ultic Hapludalfs

Taxadjunct statement: The Needmore soils in McMinn County are taxadjuncts to the series because their soil temperature is higher than is typical for the series. This difference, however, does not significantly affect use and management of the soils.

Associated soils: Nonaburg and Corryton soils

Typical Pedon

Needmore silt loam, in an area of Needmore-Corryton complex, 5 to 12 percent slopes; from Athens, 1.2 miles southwest on Cedar Springs Road from the intersection with Park Avenue, 500 feet east in a hayfield; USGS Athens topographic quadrangle; lat. 35 degrees 25 minutes 33 seconds N. and long. 84 degrees 36 minutes 26 seconds W.

Ap—0 to 7 inches; dark yellowish brown (10YR 4/4) silt loam; moderate fine granular structure; very friable; many fine roots; 2 percent shale channers; moderately acid; abrupt smooth boundary.

BE—7 to 12 inches; yellowish brown (10YR 5/8) silty clay loam; weak medium subangular blocky structure; friable; common fine roots; few faint clay films on faces of peds and in pores; 5 percent

shale channers; moderately acid; clear wavy boundary.

Bt1—12 to 26 inches; strong brown (7.5YR 5/8) clay loam; many medium distinct yellowish brown (10YR 5/4) mottles; moderate medium subangular blocky structure; friable; common fine and medium and few coarse roots; few distinct clay films on faces of peds and in pores; 5 percent shale channers; slightly acid; gradual wavy boundary.

Bt2—26 to 31 inches; strong brown (7.5YR 5/8) clay; few medium faint yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; firm; few fine roots; few distinct clay films on faces of peds and in pores; 5 percent shale channers; slightly acid; gradual wavy boundary.

Bt3—31 to 35 inches; strong brown (7.5YR 5/8) channery clay; moderate medium subangular blocky structure; firm; very few fine roots; few distinct clay films on faces of peds and in pores; 15 percent shale channers; slightly acid; abrupt wavy boundary.

Cr—35 to 40 inches; soft, brownish, fractured, tilted, calcareous shale.

Range in Characteristics

Thickness of the solum: 18 to 38 inches
Depth to soft bedrock: 20 to 40 inches
Size and kind of rock fragments: Channers and pebbles of shale
Reaction: Strongly acid to slightly acid
A horizon:
- Hue—10YR
- Value—4 to 6
- Chroma—3 or 4
- Texture—silt loam
- Content of rock fragments—2 to 10 percent

BE horizon:
- Hue—7.5YR or 10YR
- Value—5 or 6
- Chroma—4 to 8
- Texture—silt loam or silty clay loam
- Content of rock fragments—2 to 10 percent

Bt horizon:
- Hue—7.5YR to 2.5Y
- Value—5 or 6
- Chroma—4 to 8
- Mottles—(if they occur) in shades of red, brown, or yellow
- Texture of the fine-earth fraction—silty clay, clay, or clay loam
- Content of rock fragments—2 to 25 percent

Cr horizon:
- Brownish or yellowish, calcareous shale that is tilted at an angle of more than 10 degrees

Neubert Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate
Physiographic area: Southern Appalachian Ridges and Valleys (in the Red Hills area)
Landscape position: Narrow flood plains and intermittent drainageways
Parent material: Alluvium derived from quartzose limestone and calcareous sandstone and shale
Slope range: 0 to 3 percent

Taxonomic class: Fine-loamy, siliceous, semiactive, thermic Oxyaquic Eutrudepts

Associated soils: Alcoa, Tellico, Red Hills, and Steekee soils on adjacent uplands

Typical Pedon

Neubert loam, frequently flooded; 4.5 miles southeast on County Road 480 from the intersection with U.S. Highway 411 in Englewood, 65 feet southwest of County Road 480, in a pine plantation adjacent to Thompson Branch; USGS Englewood topographic quadrangle; lat. 35 degrees 22 minutes 55 seconds N. and long. 84 degrees 27 minutes 31 seconds W.

A—0 to 6 inches; dark reddish brown (5YR 3/4) loam; weak fine and medium subangular blocky structure; friable; common fine and medium roots; strongly acid; clear smooth boundary.

Bw1—6 to 10 inches; dark reddish brown (2.5YR 3/4) sandy clay loam; weak and moderate medium subangular blocky structure; friable; common fine and medium and few coarse roots; moderately acid; clear smooth boundary.

Bw2—10 to 19 inches; dark reddish brown (2.5YR 3/3) sandy clay loam; weak and moderate medium subangular blocky structure; friable; common fine and medium roots; few fine black weakly cemented concentrations; moderately acid; clear smooth boundary.

Bw3—19 to 29 inches; dark reddish brown (5YR 3/4) loam; weak fine subangular blocky structure; friable; few fine and medium roots; moderately acid; abrupt smooth boundary.

Bw4—29 to 38 inches; dark reddish brown (5YR 3/4) loam; weak fine subangular blocky structure; friable; common fine roots; few fine black weakly cemented concentrations; moderately acid; clear wavy boundary.

Bw5—38 to 45 inches; dark reddish brown (5YR 3/4) loam; common fine distinct gray (5YR 5/1) mottles; weak fine subangular blocky structure; friable; few fine roots; common fine black weakly cemented

concentrations; slightly acid; clear smooth boundary.

Agb—45 to 56 inches; dark reddish gray (5YR 4/2) loam, brown (7.5YR 4/3) when exposed to air; moderate medium subangular blocky structure; friable; few fine roots; few fine red concretions; common fine and medium weakly cemented black concentrations; neutral; clear smooth boundary.

Bgb—56 to 74 inches; dark grayish brown (10YR 4/2) loam; few medium distinct dark reddish brown (5YR 3/4) mottles; weak medium subangular blocky structure; friable; many fine black weakly cemented concretions; neutral.

Range in Characteristics

Thickness of the solum: 40 to more than 72 inches
Depth to bedrock: More than 60 inches
Depth to seasonal high water table: 21 to 40 inches
Size and kind of rock fragments: Pebbles and channers of quartzose limestone and calcareous sandstone and shale
Concretions: Few to many, black or brown concretions in the subsoil of most pedons
Reaction: Strongly acid to neutral
A horizon:
Hue—2.5YR or 5YR
Value—3 or 4
Chroma—3 or 4
Texture—loam or sandy loam
Content of rock fragments—0 to 10 percent
Bw horizon:
Hue—2.5YR or 5YR
Value—3 or 4
Chroma—3 to 6
Mottles—redoximorphic depletions having chroma of 2 or less below a depth of 24 inches in some pedons
Texture—dominantly loam, sandy clay loam, or clay loam; some pedons have thin subhorizons of silty clay loam or silt loam
Content of rock fragments—0 to 10 percent
Agb horizon:
Hue—5YR to 10YR or neutral
Value—3 or 4
Chroma—0 to 2
Mottles—(if they occur) in shades of brown or red
Texture—loam, sandy clay loam, or clay loam
Content of rock fragments—0 to 10 percent
Bgb horizon:
Hue—5YR to 10YR
Value—3 or 4
Chroma—0 to 2
Mottles—(if they occur) in shades of brown or red
Texture—loam, sandy clay loam, or clay loam
Content of rock fragments—0 to 10 percent

Nonaburg Series

Depth class: Shallow
Drainage class: Well drained
Permeability: Moderately slow
Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Narrow ridge crests, shoulder slopes, and side slopes
Parent material: Residuum derived from calcareous shale and thin interbedded layers of limestone
Slope range: 5 to 60 percent

Taxonomic class: Clayey, mixed, active, thermic, shallow Inceptic Hapludalfs

Associated soils: Needmore soils; areas of Rock outcrop

Typical Pedon

Nonaburg silty clay loam, in an area of Nonaburg-Needmore complex, 12 to 25 percent slopes, very rocky; 2.4 miles east of Englewood on State Route 39, about 0.1 mile southwest on County Road 477, about 0.25 mile southeast to the lower part of a side slope, in a mixed forest; USGS Englewood topographic quadrangle; lat. 35 degrees 24 minutes 08 seconds N. and long. 84 degrees 27 minutes 23 seconds W.

Oi—1 inch to 0; partially decomposed hardwood litter and twigs.

A—0 to 2 inches; dark brown (10YR 3/3) silty clay loam; moderate medium granular structure; friable; many fine and medium roots; 5 percent shale channers; neutral; abrupt smooth boundary.

Bt—2 to 10 inches; dark yellowish brown (10YR 4/4) clay; common medium distinct yellowish brown (10YR 5/8) mottles; moderate medium subangular blocky structure; firm; sticky; plastic; common medium roots; few distinct clay films on faces of peds and in pores; 10 percent shale channers; slightly acid; abrupt wavy boundary.

Cr—10 to 39 inches; soft, brownish, fractured, tilted, calcareous shale.

Range in Characteristics

Thickness of the solum: 10 to 20 inches
Depth to soft bedrock: 8 to 20 inches
Size and kind of rock fragments: Channers and pebbles of shale

Reaction: Slightly acid to slightly alkaline
A horizon:
Hue—10YR
Value—3 to 5
Chroma—2 to 4
Texture of the fine-earth fraction—silty clay loam or silt loam
Content of rock fragments—2 to 30 percent
Bt horizon:
Hue—7.5YR to 2.5Y
Value—4 or 5
Chroma—4 to 8
Texture of the fine-earth fraction—clay, silty clay, or silty clay loam
Mottles—(if they occur) in shades of red, brown, or yellow
Content of rock fragments—2 to 30 percent
Cr horizon:
Brownish or yellowish, calcareous shale that is tilted at an angle of more than 10 degrees

Pettyjon Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Upland depressions and drainageways
Parent material: Mixed alluvium derived from limestone, shale, and sandstone
Slope range: 0 to 3 percent

Taxonomic class: Fine-loamy, mixed, active, thermic Dystric Fluventic Eutrudepts

Associated soils: Dewey, Etowah, and Waynesboro soils on adjacent uplands

Typical Pedon

Pettyjon silty clay loam, occasionally flooded; 8.3 miles south on U.S. Highway 11 from the intersection of State Route 30 in Athens, 1,200 feet west in a cornfield; USGS Calhoun topographic quadrangle; lat. 35 degrees 20 minutes 52 seconds N. and long. 84 degrees 43 minutes 20 seconds W.

Ap—0 to 7 inches; brown (7.5YR 4/3) silty clay loam; moderate medium granular structure; very friable; many very fine and fine roots; slightly acid; clear smooth boundary.
Bw1—7 to 18 inches; brown (7.5YR 4/4) silty clay loam; moderate fine subangular blocky structure; very friable; many fine roots; slightly acid; clear smooth boundary.
Bw2—18 to 33 inches; dark brown (7.5YR 3/3) loam; weak fine subangular blocky structure; very friable; few fine roots; slightly acid; clear smooth boundary.
Bw3—33 to 54 inches; dark reddish brown (5YR 3/3) loam; weak medium subangular blocky structure; very friable; few fine roots; slightly acid; clear smooth boundary.
Bt4—54 to 61 inches; dark reddish brown (5YR 3/4) loam; weak fine subangular blocky structure; friable; slightly acid.

Range in Characteristics

Thickness of the solum: 40 to more than 60 inches
Depth to bedrock: More than 60 inches
Depth to seasonal high water table: 60 to 72 inches
Size and kind of rock fragments: Pebbles of chert
Reaction: Slightly acid or neutral
Ap horizon:
Hue—7.5YR or 10YR
Value—4
Chroma—3 or 4
Texture—silty clay loam or silt loam
Content of rock fragments—0 to 5 percent
Bw horizon:
Hue—5YR to 10YR
Value—3 to 5
Chroma—3 to 6
Mottles—(if they occur) in shades of brown, yellow, or red
Texture—loam, silt loam, or silty clay loam
Content of rock fragments—0 to 5 percent
C horizon: (if it occurs)
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 or 4
Mottles—in shades of brown, yellow, red, or gray
Texture of the fine-earth fraction—loam, silt loam, or silty clay loam
Content of rock fragments—0 to 20 percent

Red Hills Series

Depth class: Moderately deep (fig. 15)
Drainage class: Well drained
Permeability: Moderately rapid
Physiographic area: Southern Appalachian Ridges and Valleys (in the Red Hills area)
Landscape position: Side slopes and backslopes

Parent material: Residuum and colluvium derived from quartzose limestone and calcareous sandstone and shale
Slope range: 25 to 80 percent

Taxonomic class: Fine-loamy, parasesquic, thermic Humic Dystrudepts

Associated soils: Alcoa, Neubert, Steekee, and Tellico soils

Typical Pedon

Red Hills sandy loam, in an area of Red Hills and Steekee soils, 35 to 80 percent slopes, rocky; about 6.9 miles east of Englewood on State Route 39, about 400 feet east of State Route 39, in a hardwood forest; USGS Mecca topographic quadrangle; lat. 35 degrees 21 minutes 38 seconds N. and 84 degrees 25 minutes 18 seconds W.

Oi—0 to 1 inch; undecomposed hardwood litter and twigs.
A—1 to 4 inches; dark reddish brown (2.5YR 3/3) sandy loam; weak medium granular structure; very friable; many fine and few coarse roots; 10 percent soft sandstone pebbles; very strongly acid; abrupt smooth boundary.
Bw1—4 to 16 inches; dark reddish brown (2.5YR 3/4) gravelly sandy loam; weak fine subangular blocky structure; friable; many fine and common medium roots; 15 percent soft sandstone cobbles and pebbles; very strongly acid; clear smooth boundary.
Bw2—16 to 26 inches; dark reddish brown (2.5YR 3/4) very gravelly loam; weak fine subangular blocky structure; friable; many fine roots; 40 percent soft sandstone cobbles and pebbles; very strongly acid; clear smooth boundary.
Cr—26 to 32 inches; dark reddish brown, decalcified quartzose limestone; many distinct dark red (2.5YR 3/6) argillans ranging from 0.5 millimeter to 5 millimeters in thickness along relict fracture planes.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to soft bedrock: 20 to 40 inches
Depth to hard bedrock: More than 40 inches
Size and kind of rock fragments: Soft pebbles and channers of decalcified quartzose limestone and calcareous sandstone and shale
Reaction: Very strongly acid to moderately acid
A horizon:
Hue—2.5YR or 5YR
Value—3 or 4
Chroma—3 or 4
Texture of the fine-earth fraction—sandy loam or loam
Content of rock fragments—5 to 25 percent
Bw horizon:
Hue—10R to 5YR
Value—3 or 4
Chroma—3 to 6
Mottles—(if they occur) few or common, in shades of yellow or brown
Texture of the fine-earth fraction—sandy loam, loam, sandy clay loam, or clay loam
Content of rock fragments—5 to 40 percent
BC horizon (if it occurs):
Hue—10R to 5YR
Value—3 or 4
Chroma—3 to 6
Mottles—(if they occur) few or common, in shades of yellow or brown
Texture of the fine-earth fraction—loam, sandy loam, sandy clay loam, or clay loam
Content of rock fragments—5 to 45 percent
Cr horizon:
Soft, decalcified quartzose limestone, calcareous sandstone, or shale

Rockdell Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate or moderately rapid
Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Flood plains and drainageways near cherty uplands
Parent material: Mixed alluvium derived from cherty limestone and shale
Slope range: 0 to 3 percent

Taxonomic class: Loamy-skeletal, siliceous, active, thermic Dystric Fluventic Eutrudepts

Associated soils: Dewey, Fullerton, Bodine, Corryton, Townley, and Coile soils on adjacent uplands

Typical Pedon

Rockdell gravelly loam, occasionally flooded; about 5.5 miles west of Riceville on County Road 100 to the intersection with County Road 110, about 600 feet east and 190 feet south of County Road 110, near an unnamed tributary of Rogers Creek; USGS Riceville topographic quadrangle; lat. 35 degrees 26 minutes 03 seconds N. and long. 84 degrees 43 minutes 55 seconds W.

Oi—1 inch to 0; partially decomposed leaves, twigs, and roots.

Ap—0 to 10 inches; brown (10YR 4/3) gravelly loam; weak fine granular structure; very friable; many fine and few coarse roots; 20 percent chert gravel; moderately acid; clear smooth boundary.

Bw1—10 to 18 inches; yellowish brown (10YR 5/6) gravelly loam; weak fine subangular blocky structure; friable; common fine and few coarse roots; 35 percent chert gravel; slightly acid; clear smooth boundary.

Bw2—18 to 29 inches; yellowish brown (10YR 5/6) extremely gravelly loam; weak fine subangular blocky structure; friable; common fine and few medium roots; 60 percent chert gravel; few coatings of manganese on rock fragments; slightly acid; clear smooth boundary.

C—29 to 41 inches; light yellowish brown (2.5Y 6/3) very gravelly loam; few fine distinct yellowish brown (10YR 5/6) mottles; massive; friable; few fine roots; 30 percent pebbles and 25 percent cobbles of chert; common accumulations of manganese; slightly acid; clear smooth boundary.

2Bt—41 to 60 inches; strong brown (7.5YR 5/8) very cobbly clay loam; common medium distinct yellowish red (5YR 5/6) mottles; moderate medium subangular blocky structure; friable; few fine roots; 25 percent cobbles and 20 percent chert pebbles; few accumulations of manganese; common medium prominent light gray (2.5Y 7/2) iron depletions throughout; moderately acid.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to bedrock: More than 60 inches
Depth to seasonal high water table: 42 to 60 inches
Size and kind of rock fragments: Pebbles and cobbles of mostly chert with some limestone, shale, and sandstone
Reaction: Very strongly acid to slightly acid
Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—2 to 4
Texture of the fine-earth fraction—loam or silt loam
Content of rock fragments—10 to 40 percent
Bw horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Mottles—(if they occur) in shades of brown, yellow, or red
Texture of the fine-earth fraction—loam, clay loam, silt loam, or silty clay loam
Content of rock fragments—15 to 70 percent
C horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 6
Mottles—in shades of brown, yellow, red, or gray
Texture of the fine-earth fraction—loam, sandy loam, clay loam, silt loam, or silty clay loam
Content of rock fragments—15 to 70 percent
2Bt horizon:
Hue—2.5YR to 10YR
Value—4 to 6
Chroma—4 to 8
Mottles—in shades of gray, brown, or yellow
Texture of the fine-earth fraction—clay loam, loam, clay, or silty clay
Content of rock fragments—15 to 70 percent

Shady Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Flood plains, drainageways, and stream terraces, mostly along Conasauga Creek
Parent material: Mixed alluvium derived from limestone, shale, and sandstone
Slope range: 2 to 12 percent

Taxonomic class: Fine-loamy, mixed, subactive, thermic Typic Hapludults

Associated soils: Etowah soils in landscape positions similar to those of the Shady soils; Hamblen soils on adjacent flood plains; Lostcove, Keener, Fullerton, Dewey, Coile, Sunlight, and Apison soils on adjacent uplands

Typical Pedon

Shady loam, 2 to 5 percent slopes; 2.7 miles east of Calhoun on State Route 163, about 1.3 miles south on County Road 971, about 1.9 miles southeast on County Road 950, about 1,000 feet south in a hayfield; USGS Calhoun topographic quadrangle; lat. 35 degrees 15 minutes 33 seconds N. and long. 84 degrees 44 minutes 24 seconds W.

Ap—0 to 8 inches; brown (10YR 4/3) loam; weak medium granular structure; friable; many very fine and fine roots; slightly acid; clear smooth boundary.

Bt1—8 to 22 inches; dark yellowish brown (10YR 4/6) clay loam; few medium faint yellowish brown

(10YR 5/6) mottles; moderate medium subangular blocky structure; friable; many fine roots; common fine flakes of mica; slightly acid; clear smooth boundary.

Bt2—22 to 36 inches; yellowish brown (10YR 5/6) clay loam; moderate medium subangular blocky structure; friable; few fine roots; common fine flakes of mica; slightly acid; clear smooth boundary.

BC—36 to 60 inches; yellowish brown (10YR 5/6) loam; weak medium subangular blocky structure; friable; few fine roots; many fine flakes of mica; strongly acid.

Range in Characteristics

Thickness of the solum: 30 to 60 inches
Depth to bedrock: More than 60 inches
Size and kind of rock fragments: Pebbles and cobbles of sandstone, limestone, chert, and shale
Reaction: Very strongly acid to slightly acid in unlimed areas
Ap horizon:
Hue—10YR
Value—3 or 4
Chroma—3 or 4 (horizons with value and chroma of 3 are less than 6 inches thick)
Texture—loam or fine sandy loam
Content of rock fragments—0 to 10 percent
Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 or 6
Mottles—(if they occur) in shades of brown
Texture—clay loam, loam, or sandy clay loam
Content of rock fragments—0 to 15 percent
C horizon (if it occurs):
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 or 6
Mottles—in shades of brown, yellow, red, or gray
Texture—loam, fine sandy loam, or sandy loam
Content of rock fragments—0 to 25 percent

Steadman Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderately slow
Physiographic area: Southern Appalachian Ridges and Valleys (mostly along Chestuee Creek)
Landscape position: Flood plains
Parent material: Mixed alluvium derived from shale and limestone
Slope range: 0 to 3 percent

Taxonomic class: Fine-silty, mixed, active, thermic Fluvaquentic Eutrudepts

Associated soils: Bloomingdale soils in depressions; Hamblen soils in landscape positions similar to those of the Steadman soils; Corryton, Townley, Coile, Dewey, Fullerton, and Bodine soils on adjacent uplands

Typical Pedon

Steadman silty clay loam, frequently flooded; 6.2 miles east of Etowah on County Road 660 (8th Street) from the intersection with U.S. Highway 411, about 0.50 mile south on a gravel road to a pastured area, 200 feet west of Chestuee Creek; USGS Etowah topographic quadrangle; lat. 36 degrees 19 minutes 11 seconds N. and long. 84 degrees 37 minutes 12 seconds W.

Ap—0 to 7 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine subangular blocky structure; friable; many fine roots; neutral; clear smooth boundary.

Bw1—7 to 19 inches; strong brown (7.5YR 5/6) silty clay loam; few fine faint strong brown (7.5YR 5/6) and many medium distinct brown (10YR 4/3) mottles; moderate medium subangular blocky structure; friable; common fine roots; neutral; clear smooth boundary.

Bw2—19 to 27 inches; brown (10YR 4/3) silty clay loam; moderate medium subangular blocky structure; friable; few fine roots; common fine soft accumulations of manganese on faces of peds; few fine faint dark grayish brown (10YR 4/2) iron depletions in the matrix; neutral; clear smooth boundary.

Bw3—27 to 36 inches; brown (10YR 4/3) silty clay loam; few fine distinct strong brown (7.5YR 5/6) mottles; moderate medium subangular blocky structure; friable; few fine roots; many fine soft accumulations of manganese on faces of peds; few fine distinct light brownish gray (10YR 6/2) iron depletions in the matrix; neutral; clear smooth boundary.

C1—36 to 50 inches; brown (10YR 4/3) silty clay loam; common medium distinct strong brown (7.5YR 5/6) mottles; massive; friable; few fine roots; many fine accumulations of manganese in the matrix; common medium distinct light brownish gray (10YR 6/2) iron depletions throughout; neutral; gradual smooth boundary.

C2—50 to 61 inches; brown (10YR 4/3) silty clay loam; common medium distinct strong brown (7.5YR 5/6) mottles; massive; friable; many fine accumulations of manganese in the matrix; many

fine and medium grayish brown (2.5Y 5/2) iron depletions throughout; neutral; clear smooth boundary.

C3—61 to 64 inches; brown (10YR 4/3) loam; few medium distinct strong brown (7.5YR 5/6) mottles; massive; friable; many fine accumulations of manganese in the matrix; common medium distinct light brownish gray (2.5Y 6/2) iron depletions throughout; neutral.

Range in Characteristics

Thickness of the solum: 30 to more than 60 inches
Depth to bedrock: More than 60 inches
Depth to seasonal high water table: 18 to 36 inches
Size and kind of rock fragments: Pebbles of chert
Reaction: Moderately acid to slightly alkaline
Ap horizon:
Hue—10YR
Value—3 or 4
Chroma—3 or 4
Texture—silty clay loam or silt loam
Content of rock fragments—0 to 5 percent
Bw horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Mottles—in shades of gray, brown, yellow, or red
Texture—silt loam or silty clay loam
Content of rock fragments—0 to 5 percent
C horizon:
Hue—10YR
Value—4 to 6
Chroma—3 to 6
Mottles—in shades of gray, brown, yellow, or red; some horizons are mottled and have no dominant matrix color
Texture of the fine-earth fraction—silt loam, silty clay loam, or loam
Content of rock fragments—0 to 35 percent

Steekee Series

Depth class: Shallow (fig. 16)
Drainage class: Well drained
Permeability: Moderate or moderately rapid
Physiographic area: Southern Appalachian Ridges and Valleys (in the Red Hills area)
Landscape position: Ridge crests, backslopes, and side slopes
Parent material: Residuum derived from quartzose limestone and calcareous sandstone and shale; soil creep has affected the upper part of most pedons on steep and very steep side slopes
Slope range: 12 to 80 percent

Taxonomic class: Loamy, parasesquic, thermic, shallow Ruptic-Ultic Dystrudepts

Associated soils: Alcoa, Red Hills, and Tellico soils on adjacent uplands; Neubert soils on adjacent flood plains

Typical Pedon

Steekee sandy loam, in an area of Tellico-Steekee complex, 12 to 25 percent slopes; 1.3 miles east on State Route 310 from the intersection of U.S. Highway 411 and State Route 310, about 0.4 mile north on County Road 536, about 4 miles north on County Road 489, about 750 feet northeast on a ridge crest, in a mixed hardwood forest; USGS Mecca topographic quadrangle; lat. 35 degrees 21 minutes 05 seconds N. and 84 degrees 29 minutes 27 seconds W.

A—0 to 4 inches; dark reddish brown (5YR 3/3) sandy loam; weak fine and medium granular structure; very friable; many fine and medium and few coarse roots; 5 percent sandstone gravel; very strongly acid; clear smooth boundary.

Bw/Bt—4 to 10 inches; reddish brown (5YR 4/4) gravelly loam (Bw part); weak fine subangular blocky structure; friable; many fine and medium and common coarse roots; reddish brown (5YR 4/4) gravelly sandy clay loam (Bt part); weak fine subangular blocky structure; friable; many fine and medium and common coarse roots; few distinct clay films on faces of peds; 20 percent sandstone gravel; moderately acid; abrupt wavy boundary.

C/Cr—10 to 14 inches; reddish brown (5YR 4/4) very gravelly sandy clay loam (C part); moderate fine subangular blocky structure; friable; common fine and medium and few coarse roots; few distinct clay films on faces of peds and on faces of rocks; 50 percent sandstone pebbles and channers; strongly acid; layers of brown, soft sandstone and reddish brown shale (Cr part); clear wavy boundary.

Cr—14 to 60 inches; interbedded light olive brown, soft sandstone and reddish brown, weathered shale; shale layer only about 1 inch thick.

Range in Characteristics

Thickness of the solum: Less than 20 inches
Depth to soft bedrock: Less than 20 inches
Depth to hard bedrock: 20 to more than 60 inches
Size and kind of rock fragments: Pebbles and channers of quartzose limestone and calcareous sandstone and shale
Reaction: Very strongly acid to moderately acid
A horizon:
Hue—5YR to 10YR

Value—3 or 4
Chroma—3 to 6
Texture of the fine-earth fraction—sandy loam or loam
Content of rock fragments—5 to 40 percent

Bw/Bt horizon:
Hue—2.5YR to 7.5YR
Value—3 to 5
Chroma—3 to 6
Texture of the fine-earth fraction—sandy clay loam, loam, clay loam, or fine sandy loam
Content of rock fragments—5 to 25 percent

C horizon:
Hue—2.5YR to 7.5YR
Value—3 to 5
Chroma—3 to 6
Texture of the fine-earth fraction—sandy clay loam, clay loam, sandy loam, loam, or, in some pedons, sandy clay or clay
Content of rock fragments—5 to 50 percent

Cr horizon:
Interbedded layers of olive to brown, rotten quartzose limestone and red to brown, weathered argillaceous shale

Sunlight Series

Depth class: Shallow
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Narrow, convex ridge crests, shoulder slopes, and side slopes
Parent material: Residuum derived from tilted, interbedded siltstone, shale, and sandstone
Slope range: 5 to 60 percent

Taxonomic class: Loamy-skeletal, mixed, semiactive, thermic, shallow Inceptic Hapludults

Associated soils: Apison soils

Typical Pedon

Sunlight channery sandy loam, in an area of Sunlight-Apison complex, 12 to 25 percent slopes, very rocky; 8 miles west of Riceville on County Road 100, about 0.25 mile southwest on County Road 87, about 1,100 feet northwest to top of ridge, in a hardwood forest; USGS Goodfield topographic quadrangle; lat. 35 degrees 27 minutes 26 seconds N. and long. 84 degrees 45 minutes 49 seconds W.

Oi—1 inch to 0; slightly decomposed hardwood leaf litter.

A—0 to 3 inches; dark reddish brown (2.5YR 3/3) channery sandy loam; moderate fine granular structure; very friable; many fine and few coarse roots; 25 percent shale channers; very strongly acid; clear smooth boundary.

Bt—3 to 13 inches; reddish brown (2.5YR 4/4) very channery loam; weak medium subangular blocky structure; friable; common fine and few medium roots; 45 percent shale channers; very strongly acid; clear wavy boundary.

Cr—13 to 40 inches; reddish, tilted, interbedded siltstone, shale, and sandstone.

Range in Characteristics

Thickness of the solum: 10 to 20 inches
Depth to soft bedrock: 10 to 20 inches
Depth to hard bedrock: 40 to more than 60 inches
Size and kind of rock fragments: Channers and pebbles of shale, siltstone, and sandstone
Reaction: Very strongly acid or strongly acid

A horizon:
Hue—2.5YR to 10YR
Value—3 or 4
Chroma—3 to 6
Texture of the fine-earth fraction—sandy loam or loam
Content of rock fragments—10 to 25 percent

Bt horizon:
Hue—2.5YR to 10YR
Value—4 or 5
Chroma—4 to 8
Mottles—(if they occur) in shades of brown or yellow
Texture of the fine-earth fraction—loam, sandy loam, clay loam, or silt loam
Content of rock fragments—35 to 80 percent

Cr horizon:
Reddish to brownish, tilted, interbedded siltstone, shale, and sandstone

Tasso Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate in the upper part of the profile and moderately slow in the lower part
Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Footslopes, stream terraces, and benches
Parent material: Alluvium or colluvium derived from

soils formed in cherty limestone or dolomite and in the underlying residuum or old alluvium
Slope range: 2 to 12 percent

Taxonomic class: Fine-loamy, siliceous, semiactive, thermic Fragic Paleudults

Associated soils: Bodine, Fullerton, and Dewey soils on adjacent uplands; Hamblen soils on adjacent flood plains

Typical Pedon

Tasso loam, 2 to 5 percent slopes; 6.6 miles west on State Route 30 from the intersection of State Highway 30 and I-75, about 940 feet southwest of State Route 30 and 150 feet northeast of a stream, in a pastured area; USGS Riceville topographic quadrangle; lat. 35 degrees 29 minutes 09 seconds N. and long. 84 degrees 44 minutes 54 seconds W.

Ap—0 to 9 inches; dark yellowish brown (10YR 4/4) loam; moderate medium granular structure; friable; many fine roots; 5 percent fine chert pebbles; neutral; clear smooth boundary.
BA—9 to 15 inches; dark yellowish brown (10YR 4/6) loam; common medium distinct yellowish brown (10YR 5/4) mottles; weak fine subangular blocky structure; friable; common fine roots; 5 percent fine chert pebbles; neutral; clear smooth boundary.
Bt—15 to 30 inches; yellowish brown (10YR 5/6) clay loam; moderate medium subangular blocky structure; friable; few fine roots; few faint clay films on faces of peds; 10 percent chert gravel; common medium dark concretions; moderately acid; clear smooth boundary.
Btx—30 to 42 inches; yellowish brown (10YR 5/8) gravelly clay; few fine prominent strong brown (7.5YR 5/6) mottles; weak medium angular blocky structure; friable; 40 to 50 percent brittleness; very few fine roots along faces of peds; common distinct strong brown (7.5YR 5/6) clay films on faces of peds; common medium prominent light gray (2.5Y 7/1) iron depletions on faces of peds; common medium dark concretions; strongly acid; clear smooth boundary.
2Bt—42 to 48 inches; brownish yellow (10YR 6/8) clay; few fine prominent yellowish red (5YR 5/6) mottles; weak medium subangular blocky structure; friable; few faint clay films on faces of peds and in pores; 10 percent chert gravel; many medium distinct light brownish gray (10YR 6/2) iron depletions; few medium dark concretions; strongly acid; clear smooth boundary.
2BC1—48 to 59 inches; strong brown (7.5YR 5/6) clay loam; many medium prominent light yellowish brown (2.5Y 6/3) mottles; weak medium subangular blocky structure; friable; common medium prominent light brownish gray (2.5Y 6/2) iron depletions; 10 percent fine chert pebbles; strongly acid; clear smooth boundary.
2BC2—59 to 62 inches; strong brown (7.5YR 5/6) gravelly clay; weak coarse subangular blocky structure; firm; 25 percent subrounded chert pebbles; strongly acid.

Range in Characteristics

Thickness of the solum: More than 60 inches
Depth to bedrock: More than 60 inches
Depth to seasonal high water table: 24 to 36 inches
Size and kind of rock fragments: Pebbles of subrounded chert
Reaction: Very strongly acid to moderately acid in unlimed areas
Ap horizon:
Hue—10YR
Value—3 to 5
Chroma—2 to 4
Texture—loam or silt loam
Content of rock fragments—0 to 15 percent
BA horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—4 to 6
Texture—loam or silt loam
Content of rock fragments—0 to 15 percent
Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 8
Texture—silt loam, silty clay loam, loam, or clay loam
Content of rock fragments—0 to 15 percent
Btx horizons:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 8
Mottles—in shades of brown, yellow, red, or gray
Texture of the fine-earth fraction—silty clay loam, loam, clay loam, or clay
Content of rock fragments—0 to 25 percent
2Bt and 2BC horizons:
Hue—2.5YR to 10YR
Value—4 to 6
Chroma—6 to 8
Mottles—in shades of brown, yellow, red, or gray
Texture of the fine-earth fraction—clay, clay loam, silty clay loam, or, in some pedons, sandy clay
Content of rock fragments—0 to 25 percent

Tellico Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Southern Appalachian Ridges and Valleys (in the Red Hills area)
Landscape position: Ridge crests, backslopes, and side slopes
Parent material: Residuum derived from quartzose limestone and calcareous sandstone and shale
Slope range: 5 to 65 percent

Taxonomic class: Fine, parasesquic, thermic Typic Rhodudults

Associated soils: Alcoa and Steekee soils on adjacent uplands; Neubert soils on adjacent flood plains

Typical Pedon

Tellico loam, 5 to 12 percent slopes; 6.9 miles east of Englewood on State Route 39, about 0.5 mile north of the junction of State Routes 39 and 310 on State Route 39, about 900 feet east of State Route 39, in a hardwood forest; USGS Mecca topographic quadrangle; lat. 35 degrees 21 minutes 39 seconds N. and long. 84 degrees 25 minutes 13 seconds W.

A—0 to 4 inches; dark reddish brown (2.5YR 3/4) loam; weak fine subangular blocky structure; very friable; many fine roots throughout; very strongly acid; abrupt smooth boundary.

Bt1—4 to 11 inches; dark red (2.5YR 3/6) clay loam; moderate medium subangular blocky structure; friable; common fine and few coarse roots throughout; common distinct discontinuous clay films on faces of peds and in pores; very strongly acid; gradual smooth boundary.

Bt2—11 to 17 inches; dark red (2.5YR 3/6) clay; moderate medium subangular blocky structure; friable; common fine and few coarse roots throughout; many distinct continuous clay films on faces of peds and in pores; very strongly acid; clear smooth boundary.

Bt3—17 to 25 inches; dark red (2.5YR 3/6) clay; strong medium subangular blocky structure; friable; common fine roots throughout; many distinct continuous clay films on faces of peds and in pores; very strongly acid; abrupt smooth boundary.

Bt4—25 to 44 inches; dark red (2.5YR 3/6) clay loam; moderate medium subangular blocky structure; friable; few very fine and fine roots throughout; common distinct discontinuous clay films on faces of peds and in pores; 2 percent subrounded sandstone pebbles; very strongly acid; clear smooth boundary.

Bt5—44 to 61 inches; dark red (2.5YR 3/6) clay loam; weak medium subangular blocky structure; friable; few very fine and fine roots throughout; common distinct discontinuous clay films on faces of peds and in pores; 2 percent subrounded sandstone pebbles; very strongly acid; clear smooth boundary.

BC—61 to 70 inches; dark red (2.5YR 3/6) clay loam; weak fine subangular blocky structure; friable; very strongly acid.

Range in Characteristics

Thickness of the solum: 40 to more than 60 inches
Depth to bedrock: More than 60 inches
Size and kind of rock fragments: Pebbles and channers of quartzose limestone and calcareous sandstone and shale
Reaction: Very strongly acid or strongly acid in unlimed areas
A horizon:
Hue—2.5YR or 5YR
Value—3
Chroma—3 or 4
Texture—loam or sandy loam
Content of rock fragments—0 to 15 percent
Bt horizon:
Hue—10R to 5YR
Value—3
Chroma—3 to 6
Mottles—(if they occur) in shades of brown or yellow
Texture—clay, sandy clay, clay loam, or sandy clay loam
Content of rock fragments—0 to 15 percent
BC horizon:
Hue—2.5YR or 5YR
Value—3 or 4
Chroma—3 to 6
Mottles—(if they occur) in shades of brown or yellow
Texture—clay, sandy clay, clay loam, or sandy clay loam
Content of rock fragments—0 to 15 percent

Toccoa Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Physiographic area: Southern Appalachian Ridges and Valleys (in the Hiwassee River valley)
Landscape position: Flood plains

Parent material: Alluvium
Slope range: 0 to 3 percent

Taxonomic class: Coarse-loamy, mixed, active, nonacid, thermic Typic Udifluvents

Associated soils: Shady soils on adjacent stream terraces

Typical Pedon

Toccoa loam, occasionally flooded; in Polk County, Tennessee; 1 mile south of the intersection of U.S. Highway 411 and the Hiwassee River, 1.5 miles west on a farm road, 0.25 mile west along the Hiwassee River, 400 feet south of the river:

Ap—0 to 10 inches; dark yellowish brown (10YR 3/4) loam; moderate medium granular structure; very friable; many fine flakes of mica; slightly acid; abrupt smooth boundary.

C—10 to 26 inches; dark yellowish brown (10YR 4/4) loam; massive; very friable; few fine roots; many fine flakes of mica; moderately acid; gradual wavy boundary.

Ab—26 to 34 inches; dark brown (10YR 3/3) loam; massive; friable; few fine roots; many fine flakes of mica; moderately acid; gradual wavy boundary.

Bwb—34 to 48 inches; dark yellowish brown (10YR 3/4) loam; weak fine granular structure; friable; few fine roots; many fine flakes of mica; moderately acid; gradual wavy boundary.

Cb—48 to 60 inches; dark yellowish brown (10YR 4/4) loam; common fine distinct very dark grayish brown (10YR 3/2) mottles; massive; friable; many fine flakes of mica; moderately acid.

Range in Characteristics

Depth to bedrock: More than 72 inches
Depth to seasonal high water table: 48 to 72 inches
Size and kind of rock fragments: Pebbles of quartzite and sandstone
Reaction: Strongly acid to slightly acid
Ap horizon:
Hue—5YR to 10YR
Value—3 to 5
Chroma—2 to 6
Texture—loam or sandy loam
Content of rock fragments—0 to 10 percent
C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Mottles—(if they occur) in shades of brown or gray
Texture—loam, sandy loam, or loamy sand; silt loam and silty clay loam, if they occur, generally below a depth of about 40 inches
Content of rock fragments—0 to 10 percent
Ab horizon:
Hue—10YR
Value—3 to 5
Chroma—2 to 4
Texture—loam or sandy loam
Content of rock fragments—0 to 10 percent
Bwb horizon:
Hue—7.5YR or 10YR
Value—3 to 6
Chroma—4 to 6
Mottles—in shades of brown or red
Texture—loam, sandy loam, or loamy sand
Content of rock fragments—0 to 10 percent
Cb horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—3 to 6
Mottles—in shades of brown or gray
Texture—loam, sandy loam, or loamy sand
Content of rock fragments—0 to 10 percent

Townley Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Slow
Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Broad ridge crests and side slopes in valleys
Parent material: Residuum derived from tilted and fractured, acid shale
Slope range: 2 to 12 percent

Taxonomic class: Fine, mixed, semiactive, thermic Typic Hapludults

Associated soils: Corryton, Apison, and Coile soils on adjacent uplands

Typical Pedon

Townley silt loam, in an area of Corryton-Townley complex, 5 to 12 percent slopes, eroded; 1.6 miles east of Riceville on County Road 713, about 0.6 mile north on County Road 700, about 2.1 miles southeast on County Road 655, about 0.3 mile south on County Road 651, about 750 feet east of County Road 651, in a loblolly pine plantation; USGS Calhoun topographic quadrangle; lat. 35 degrees 21 minutes 36 seconds N. and long. 84 degrees 37 minutes 52 seconds W.

Ap—0 to 5 inches; strong brown (7.5YR 4/6) silt loam; moderate fine subangular blocky structure; friable;

many fine and common medium roots; 2 percent shale channers; strongly acid; abrupt smooth boundary.

Bt1—5 to 15 inches; yellowish red (5YR 5/6) clay; common medium prominent brownish yellow (10YR 6/8) mottles; strong medium subangular blocky and moderate medium angular blocky structure; friable; few fine roots; many distinct clay films on faces of peds; strongly acid; clear wavy boundary.

Bt2—15 to 24 inches; yellowish red (5YR 4/6) clay; few fine prominent brownish yellow (10YR 6/8) mottles; moderate medium subangular blocky structure; friable; few fine and medium roots; few distinct clay films on faces of peds; very strongly acid; clear wavy boundary.

Cd—24 to 28 inches; yellowish red (5YR 5/6) silty clay loam; many medium prominent brownish yellow (10YR 6/8) and many medium distinct strong brown (7.5YR 5/8) mottles; massive; firm; few fine roots; 2 percent shale channers; few manganese stains on relict rock; very strongly acid; abrupt irregular boundary.

C/Cr—28 to 44 inches; yellowish red (5YR 5/6) silty clay loam (C part); many medium prominent brownish yellow (10YR 6/8) and many medium distinct strong brown (7.5YR 5/8) mottles; massive; firm; few fine roots; 15 percent shale channers; few manganese stains on relict rock; very strongly acid; light olive brown, tilted and fractured, sandy shale (Cr part); abrupt wavy boundary.

Cr—44 to 50 inches; light olive brown, sandy shale.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to soft bedrock: 20 to 40 inches
Size and kind of rock fragments: Channers and pebbles of shale and sandy shale
Reaction: Very strongly acid or strongly acid in unlimed areas
Ap horizon:
Hue—7.5YR or 10YR
Value—3 or 4
Chroma—4 to 6
Texture of the fine-earth fraction—silt loam or loam
Content of rock fragments—0 to 20 percent
Bt horizon:
Hue—5YR to 10YR
Value—4 or 5
Chroma—6 to 8
Mottles—(if they occur) in shades of red, yellow, or brown
Texture of the fine-earth fraction—clay, silty clay, silty clay loam, or clay loam
Content of rock fragments—0 to 20 percent
C horizon:
Hue—5YR to 10YR
Value—4 to 6
Chroma—6 to 8
Mottles—(if they occur) in shades of red, yellow, brown, or olive
Texture of the fine-earth fraction—clay, silty clay, silty clay loam, clay loam, or loam
Content of rock fragments—0 to 20 percent
Cr horizon:
Olive, brown, or yellow, fractured and tilted shale

Udorthents

Depth class: Deep and very deep
Drainage class: Poorly drained to excessively drained
Permeability: Very slow to moderate
Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Uplands, flood plains, and drainageways
Parent material: Varies depending upon the underlying bedrock and source of soil material
Slope range: 0 to 12 percent

Typical Pedon

A typical pedon is not given because these soils vary greatly. Most areas of these soils have been excavated or filled. Udorthents have colors in shades of red, yellow, brown, or gray. Their textures vary.

Range in Characteristics

Depth to bedrock: 40 to more than 60 inches
Size and kind of rock fragments: Vary; mostly pebbles, channers, and cobbles of chert, shale, or sandstone
Reaction: Extremely acid to neutral
Depth to seasonal high water table: 12 to more than 60 inches

Unicoi Series

Depth class: Shallow
Drainage class: Excessively drained
Permeability: Moderately rapid
Physiographic area: Blue Ridge
Landscape position: Ridge crests, upper side slopes, and steep side slopes
Parent material: Residuum derived from arkosic sandstone

Slope range: 10 to 120 percent

Taxonomic class: Loamy-skeletal, mixed, semiactive, mesic Lithic Dystrudepts

Associated soils: Harmiller and McCamy soils

Typical Pedon

Unicoi gravelly sandy loam, in an area of Unicoi-Rock outcrop complex, 50 to 120 percent slopes; 9 miles east of Englewood, 1.5 miles east on USDA Forest Service Road 297, on a roadbank on the west side of road, in a mixed forest; USGS Mecca topographic quadrangle; lat. 35 degrees 20 minutes 29 seconds N. and long. 84 degrees 24 minutes 29 seconds W.

Oi—1 inch to 0; slightly decomposed leaves and twigs.
Oe—0 to 1 inch; partially decomposed hardwood litter, evergreen litter, and moss.
A—1 to 5 inches; brown (10YR 5/3) gravelly sandy loam; weak fine granular structure; very friable; common fine and few medium roots; 15 percent arkosic sandstone gravel; strongly acid; abrupt smooth boundary.
Bw—5 to 15 inches; brownish yellow (10YR 6/8) very gravelly sandy loam; moderate medium granular structure; friable; few coarse and common medium roots; 50 percent arkosic sandstone gravel; strongly acid; clear smooth boundary.
R—15 to 20 inches; arkosic sandstone.

Range in Characteristics

Thickness of the solum: 7 to 20 inches
Depth to hard bedrock: 7 to 20 inches
Size and kind of rock fragments: Cobbles and pebbles of arkosic sandstone
Reaction: Extremely acid to strongly acid
A horizon:
Hue—10YR
Value—3 to 5
Chroma—2 to 4
Texture of the fine-earth fraction—sandy loam or loam
Content of rock fragments—15 to 35 percent
Bw horizon:
Hue—10YR
Value—4 to 6
Chroma—4 to 8
Texture of the fine-earth fraction—sandy loam or loam
Content of rock fragments—35 to 55 percent
R horizon:
Hard sandstone, arkosic sandstone, or quartzite

Waynesboro Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Ridge crests, stream terraces, and side slopes
Parent material: Old alluvium derived from sandstone, shale, and limestone
Slope range: 2 to 12 percent

Taxonomic class: Fine, kaolinitic, thermic Typic Paleudults

Associated soils: Dewey and Bradyville soils

Typical Pedon

Waynesboro clay loam, 5 to 12 percent slopes, eroded; 0.5 mile east of Etowah on State Route 310, about 1.1 miles south on County Road 890, about 1 mile east on County Road 882, about 2,000 feet west of County Road 882, in a pastured area; USGS Etowah topographic quadrangle; lat. 35 degrees 18 minutes 26 seconds N. and 84 degrees 30 minutes 49 seconds W.

Ap—0 to 7 inches; reddish brown (5YR 4/4) clay loam; moderate medium granular structure; friable; many fine roots; 2 percent rounded quartzite pebbles; moderately acid; clear smooth boundary.
Bt1—7 to 28 inches; yellowish red (5YR 5/6) clay; moderate medium subangular blocky structure; friable; common fine roots; common distinct clay films on faces of peds and in pores; few fine manganese concretions; 2 percent rounded quartzite pebbles; strongly acid; clear smooth boundary.
Bt2—28 to 44 inches; red (2.5YR 5/6) clay; moderate medium subangular blocky structure; friable; few fine roots; many distinct clay films on faces of peds and in pores; common medium manganese concretions; 2 percent rounded quartzite pebbles; very strongly acid; gradual smooth boundary.
Bt3—44 to 79 inches; red (2.5YR 5/8) clay; strong medium subangular blocky structure; friable; many distinct clay films on faces of peds and in pores; common fine manganese concretions; 5 percent rounded quartzite pebbles; very strongly acid.

Range in Characteristics

Thickness of the solum: More than 60 inches
Depth to bedrock: More than 60 inches

Size and kind of rock fragments: Pebbles of sandstone, quartzite, or chert
Reaction: Very strongly acid to moderately acid in unlimed areas
Ap horizon:
Hue—5YR to 10YR
Value—3 to 5
Chroma—3 to 6
Texture—clay loam or silt loam
Content of rock fragments—0 to 10 percent
Bt horizon:
Hue—2.5YR or 5YR
Value—3 to 5
Chroma—6 or 8
Mottles—in shades of yellow or brown
Texture—clay or clay loam; sandy clay loam in the upper part of some pedons
Content of rock fragments—0 to 15 percent

Wolftever Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderately slow
Physiographic area: Southern Appalachian Ridges and Valleys
Landscape position: Low stream terraces, flood plains, and drainageways
Parent material: Mixed alluvium
Slope range: 1 to 12 percent

Taxonomic class: Fine, mixed, semiactive, thermic Aquic Hapludults

Associated soils: Coile, Townley, and Corryton soils on adjacent uplands

Typical Pedon

Wolftever silt loam, 1 to 5 percent slopes, occasionally flooded; 1.4 miles west on State Route 30 from the intersection with U.S. Highway 11 in Athens, 1.25 miles west on County Road 625, about 625 feet west in a hayfield; USGS Riceville topographic quadrangle; lat. 35 degrees 28 minutes 14 seconds N. and 84 degrees 37 minutes 56 seconds W.

Ap—0 to 8 inches; brown (7.5YR 4/4) silt loam; moderate medium granular structure; very friable; many fine roots; moderately acid; clear smooth boundary.

BA—8 to 16 inches; strong brown (7.5YR 4/6) silt loam; weak fine subangular blocky structure; very friable; few fine roots; few fine manganese concretions; strongly acid; clear smooth boundary.

Bt1—16 to 30 inches; brownish yellow (10YR 6/8) silty clay; common medium distinct yellowish brown (10YR 5/4) mottles; moderate medium subangular blocky structure; firm; few fine roots; common distinct clay films on faces of peds and in pores; few medium manganese concretions; common fine prominent light gray (10YR 7/2) iron depletions in the lower part; strongly acid; gradual smooth boundary.

Bt2—30 to 40 inches; olive yellow (2.5Y 6/6) silty clay; moderate medium subangular blocky structure; firm; very few fine roots; common distinct clay films on faces of peds and in pores; common fine prominent light greenish gray (10BG 7/1) iron depletions; strongly acid; gradual smooth boundary.

BC—40 to 60 inches; olive yellow (2.5Y 6/6) silty clay; weak medium subangular blocky structure; firm; common fine prominent light greenish gray (5BG 8/1) iron depletions; strongly acid; gradual smooth boundary.

CB—60 to 72 inches; pale yellow (2.5Y 7/4) silty clay; many medium prominent brownish yellow (10YR 6/8) mottles; weak coarse subangular blocky structure; firm; common distinct clay films on faces of peds and in pores; common fine prominent light greenish gray (10GY 7/1) iron depletions; strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 60 inches
Depth to bedrock: More than 60 inches
Depth to seasonal high water table: 25 to 41 inches
Size and kind of rock fragments: Pebbles of chert and sandstone
Reaction: Very strongly acid to moderately acid in unlimed areas
Ap horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—2 to 4
Texture—silt loam or silty clay loam
Content of rock fragments—0 to 5 percent
BA horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Texture—silt loam or silty clay loam
Content of rock fragments—0 to 5 percent
Bt horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Mottles—in shades of yellow, gray, or brown

Texture—silty clay loam, silty clay, or clay
Content of rock fragments—0 to 5 percent

BC horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 6
Mottles—in shades of yellow, gray, or brown
Texture—silty clay loam, silty clay, or clay
Content of rock fragments—0 to 5 percent

CB horizon:
Hue—7.5YR to 2.5Y
Value—4 to 7
Chroma—3 to 6
Mottles—in shades of yellow, gray, or brown
Texture—silty clay loam, silty clay, or clay
Content of rock fragments—0 to 15 percent

Formation of the Soils

This section relates the factors of soil formation to the soils in McMinn County and explains the processes of soil formation.

Factors of Soil Formation

Soil is a three-dimensional natural body consisting of mineral and organic material that can support plant growth. The nature and properties of any soil at a given site are the results of the interaction of five general factors—parent material, relief, climate, living organisms, and time. Soils form as distinguishable horizons, or layers, developed from weathered parent material. Soil formation is determined by the interaction of topography, climate, and dying organisms over a period of time. All five factors are active in the formation of every soil, but the relative importance of each factor differs from soil to soil. Theoretically, if all of these factors were identical at different sites, the soils at these sites would be identical. Differences among the soils are caused by variations in one or more of the factors (Jenny 1941). The five soil-forming factors and how they interact are described in the following paragraphs.

Parent Material

Parent material is the unconsolidated material in which a soil forms. It is a product of the weathering or decomposition of underlying bedrock or transported materials. Parent material influences the chemical, mineral, and textural composition of the soils.

The main types of parent material in McMinn County are residuum, which formed in place from rocks similar to those of the underlying bedrock; alluvium, which was moved and deposited by water; and colluvium, which was moved by gravity and deposited at lower elevations. Many soils formed in a combination of these three types of parent material.

Residuum is the dominant parent material in the uplands. Soils formed in residuum in McMinn County generally formed in either cherty dolomite or limestone; noncherty limestone or dolomite; quartzose limestone or calcareous sandstone; acid shale; calcareous shale; or slightly metamorphosed sandstone, siltstone, or shale. A few examples of soils and their associated bedrock are Fullerton and Bodine soils, which formed in cherty limestone or dolomite; Bradyville soils, which formed in noncherty or pure beds of limestone or dolomite; Tellico and Red Hills soils, which formed in quartzose limestone and calcareous sandstone; Coile and Townley soils, which formed in acid shale; Nonaburg and Needmore soils, which formed in calcareous shale; McCamy soils, which formed in slightly metamorphosed sandstone; and Harmiller soils, which formed in metamorphosed siltstone and shale.

Alluvium is the second most extensive parent material in the county. Evidence of alluvial parent material includes varying textures within the soil profile and the presence of rounded or subrounded pebbles or cobbles.

Soils formed in alluvial parent material can be grouped into three relative categories—old, intermediate, and young. These age groups are based on landscape position and degree of development in the soils.

Soils formed in old alluvium in the survey area are on uplands in landscape positions similar to those of soils formed in residuum. These old alluvial soils generally have a considerable amount of sand. Sometimes, the sand grains are rounded as a result of being moved by water. Waynesboro soils formed in old alluvium. The soil color, texture, development, and other soil properties of soils formed in alluvium are similar to those of many of the soils formed in residuum. Dewey soils formed in a thin layer of old alluvium and the underlying limestone or dolomite residuum.

Soils formed in intermediate-aged alluvium are on stream terraces along the Hiwassee River and other major creeks and streams in the county. Most of these areas are not subject to flooding or are only rarely flooded. Shady and Bellamy soils formed in intermediate-aged alluvium.

Young alluvial soils are mostly on flood plains and along drainageways. Most of these soils are subject to flooding. Soil material accumulates on the soil surface during the flooding. Neubert, Hamblen, Steadman, and Bloomingdale soils formed in young alluvium.

The largest single area of colluvial parent material

in McMinn County is in the eastern part of the county, at the base of Starr Mountain. Lostcove and Keener soils formed in this colluvium. Some areas of colluvial soils are also in the Red Hills area and along the linear cherty limestone and dolomite ridges that dissect the county. Identification of the parent material is difficult in areas that have a high content of chert. Minvale soils are examples of colluvial soils associated with these cherty limestone and dolomite ridges. The Fullerton and Bodine soils in some of these areas possibly formed mostly in colluvium.

Table 19 provides additional information about the general relationships of soils in McMinn County and their associated parent materials as related to the geology of the area.

Relief

The relief of the landscape influences soil formation in McMinn County mainly through its effect on drainage, erosion, plant cover, and soil temperature. Water moves down through the soil profiles of the nearly level and gently sloping Hamblen and Etowah soils. The seasonal high water table in Bloomingdale soils is partly the result of relief. On steeper soils, such as Fullerton and Bodine soils, water moves across the soil surface with little water infiltrating the soil surface.

Relief has a major effect on erosion. On sloping to very steep, unprotected soils, water runoff carries away valuable topsoil and nutrients. Erosion or runoff, or both, can remove soil much faster than it is formed. On these soils, the infiltration rate is low, thus slowing the processes of horizon differentiation. Additional information about the formation of horizons is provided under the heading "Processes of Horizon Differentiation," which is at the end of this section.

Temperature is also affected by relief. Relief influences temperature mainly by controlling the exposure and angle of the landscape to the sun. Since temperature plays a major role in the rate of chemical reactions, reactions in the soil can be faster or slower, depending on the amount of sunlight the surface of the soil receives. North and east exposures tend to be more moist and cooler than south and west exposures. As a result, soils on north- or east-facing slopes generally have a lower degree of soil formation.

Climate

Climate affects the kind and number of plants and animals on and in the soils, weathering of rocks and minerals, susceptibility of soils to erosion, and the rate of soil formation.

The climate of McMinn County is temperate and humid. The average yearly temperature at a weather station near Athens is about 57 degrees F. In winter the average temperature is about 38 degrees F, and in summer it is about 75 degrees F. Average annual precipitation is about 57 inches. The precipitation is fairly well distributed throughout the year.

Past climatic episodes played a large role in weathering of the present soils. The rate of a chemical reaction doubles for every 10 degrees C increase in temperature. An abundance of moisture and warm temperatures aid in leaching many soluble bases from the soil and result in the formation of an acid subsoil, which is common in McMinn County. Water moving down through the soil profile carries clay minerals from the surface layer into the subsoil. Most soils have a higher content of clay in the subsoil than in the surface layer. Waynesboro and Fullerton soils show pronounced clay translocation.

For more detailed information about the climate, see the section "General Nature of the County" and tables 1, 2, and 3.

Living Organisms

Living organisms actively affect soil formation. They include vegetation, bacteria, fungi, and animals. Organisms are generally more active in areas of grassland and forest. The vegetation in these areas supplies organic matter, which gives soils a dark color when it is decomposed. The nutrients are cycled or transferred from the subsoil to the surface layer by the vegetation. The bacteria and fungi help to decompose organic matter and release minerals into the soil. Worms, insects, and burrowing animals mix the soil affecting soil tilth, structure, and porosity.

Human activities, such as tillage and other management practices, affect the physical properties of soil. The movement of vehicles causes surface compaction and increases soil density. Applying lime, fertilizer, insecticides, or herbicides alters the chemical makeup of soil by increasing or decreasing the pH and buffering capacity of the soil.

Time

Over time, the forces of climate, living organisms, and relief help to weather parent material into soil. The soils of McMinn County range in age from relatively young to old. Soils formed in residuum range from the relatively young Red Hills soils to the relatively old Fullerton soils. Colluvial soils, such as Keener and Lostcove soils, range in age between the Red Hills and Fullerton soils. Soils formed in alluvium range from the relatively young soils on flood plains, such as Hamblen and Bloomingdale soils, to the older soils on stream terraces, such as Waynesboro and Etowah soils.

In younger soils, soil structure is weakly developed

and soil development is mostly expressed by soil color. In older soils, the soil structure is well developed and a higher degree of soil weathering is expressed by bright colors and by clay accumulation from overlying horizons.

Processes of Horizon Differentiation

The results of the factors of soil formation are different layers, or horizons, in a soil profile. The soil profile extends from the surface down to material that shows little evidence of soil-forming processes.

Soil horizons are formed by the accumulation of organic matter, the leaching of soluble constituents, the chemical reduction and movement of iron, the formation of soil structure, and the formation and translocation of clay minerals. These processes often take place simultaneously. In old soils they have been going on for thousands of years. Most soils have three major horizons—the A, B, and C horizons. Soils under a forest canopy have an O (organic) horizon at the surface. The O horizon consists of accumulated organic material, such as twigs and leaves, or humified organic material with a small amount of mineral material. Numbers and letters can be used within these major horizons. The Bt horizon, for example, expresses the most strongly developed part of a B horizon. The "t" represents an accumulation of clay from overlying horizons (Buol, Hole, and McCracken 1980).

Accumulation and incorporation of organic material and decomposed plant residue mix into the soil, darkening the mineral material to form the A horizon. An Ap horizon is an A horizon that has been plowed or has undergone some type of tillage practice. The E horizon is a layer of maximum leaching, or eluviation, of clay and iron. If considerable leaching has taken place, an E horizon is formed. This horizon is normally the lightest colored horizon in the profile.

The B horizon, which normally underlies the A horizon, is the subsoil. It is the horizon of maximum accumulation, or illuviation, of clay, iron, aluminum, or other compounds. The B horizon commonly has a blocky structure. It generally is less friable and lighter in color than the A horizon but is darker in color than the C or E horizon. Leaching of carbonates and other soluble minerals forms a distinct subsoil. After leaching, clay is translocated more easily and is moved as part of the percolant (Simonson 1959).

In younger soils, such as Hamblen and Steadman soils, a Bw horizon is formed mainly by the alteration of the original parent material rather than by illuviation. The alteration can be caused by physical weathering of parent material, oxidation of iron to give a brighter color, or development of soil structure that does not reflect the original rock or sediment structure.

Tellico and Dewey soils are older soils that have a Bt horizon. Clay was leached from overlying horizons and deposited in the B horizon as a result of flocculation and drying of percolating water. Soils with Bt horizons that have a dark red color indicate a presence of iron oxide. In a study by M. Oliver of the Tellico-Red Hills-Nonaburg general soil map unit, a direct relationship was found between the amount of iron oxide, clay content, redder soil colors, and the degree of soil formation (Oliver 1997). A brighter colored or brown subsoil is also indicative of naturally well drained soils in the survey area, such as Waynesboro and Corryton soils. An imperfectly drained soil has periods of anaerobic conditions. When soils become anaerobic, iron reduction occurs which causes gray or olive colors to develop in the soil profile. If the gray color is dominant in a soil horizon, then this horizon is given a designation such as Bg or Btg.

The C horizon is below the A or B horizon. It consists of material that has undergone limited soil-forming processes but can be modified by weathering. In young soils, such as Toccoa soils, which formed in recent alluvium, the C horizon is directly below the A horizon. Most young soils do not have a B horizon immediately below the A horizon.

References

American Association of State Highway and Transportation Officials. 1986. Standard specifications for highway materials and methods of sampling and testing. Ed. 14, 2 vols.

American Society for Testing and Materials. 1993. Standard classification of soils for engineering purposes. ASTM Stand. D 2487.

Bacon S.R., E.W. Knobel, T.E. Beesley, B.L. Matzek, F. Austin, C. Jenkins, B. Nichols, E.K. Yates, and A.B. Hamon. 1957. Soil survey of McMinn County, Tennessee. U.S. Dep. Agric., Soil Conserv. Serv., Ser. 1948, No. 4.

Buol, S.W., F.D. Hole, and R.J. McCracken. 1980. Soil genesis and classification. 3d ed.

Byrum, Steven C. 1984. McMinn County, Tennessee: County history series. Edited by Frank B. Williams, Jr.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildl. Serv. FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. February 24, 1995. Hydric soils of the United States.

History of Tennessee. 1887. Goodspeed Publishing Company. (Reprinted in 1972)

Hurt, G.W., P.M. Whited, and R.F. Pringle, editors. 1996. Field indicators of hydric soils in the United States.

Jenny, Hans. 1941. Factors of soil formation.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Oliver, M.C. 1997. An investigation of two landscapes on the Holston Limestone Formation in McMinn County, Tennessee. M.S. thesis, Univ. of Tennessee, Knoxville.

Simonson, Roy W. 1959. Outline of a generalized theory of soil genesis. Soil Sci. Soc. Am. Proc. 23: 152-156.

Soil Survey Division Staff. 1993. Soil survey manual. U.S. Dep. Agric. Handb. 18.

Soil Survey Staff. 1975. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. U.S. Dep. Agric. Handb. 436. (Revised in 1999)

Soil Survey Staff. 1996. National soil survey handbook, title 430-VI. U.S. Dep. Agric., Nat. Resour. Conserv. Serv. (Available in the State Office of the Natural Resources Conservation Service at 675 U.S. Courthouse, 801 Broadway, Nashville, TN 37203)

Soil Survey Staff. 1998. Keys to soil taxonomy. 8th edition. U.S. Dep. Agric., Nat. Resour. Conserv. Serv.

Tennessee Department of Agriculture, Tennessee Agricultural Statistics Service Staff. 1995. Tennessee agriculture: The shape of the state.

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildl. Serv. and Delaware Dep. of Nat. Resour. and Environ. Control, Wetlands Sect.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterw. Exp. Stn. Tech. Rep. Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. 1996. Soil survey laboratory methods manual. Soil Surv. Invest. Rep. 42.

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Dep. Agric. Handb. 210.

United States Department of Agriculture, Soil Conservation Service. 1980. National forestry manual. (Available in the State Office of the Natural Resources Conservation Service at 675 U.S. Courthouse, 801 Broadway, Nashville, TN 37203)

United States Department of Agriculture, Soil Conservation Service. 1981. Land resource regions and major land resource areas of the United States. U.S. Dep. Agric. Handb. 296.

United States Department of the Interior, Geological Survey. 1952a. Geologic map of the Athens quadrangle, Tennessee. Map GQ-19.

United States Department of the Interior, Geological Survey. 1952b. Geologic map of the Niota quadrangle, Tennessee. (no GQ number)

United States Department of the Interior, Geological Survey, and Tennessee Division of Geology. 1953. Geologic map of East Tennessee with explanatory text. Bull. 58, Part II.

Glossary

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvial fan. The fanlike deposit of a stream where it issues from a gorge upon a plain or of a tributary stream near or at its junction with its main stream.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Aspect. The direction in which a slope faces.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 40-inch profile or to a limiting layer is expressed as:

Very low	0 to 2
Low	2 to 4
Moderate	4 to 6
High	more than 6

Backslope. The geomorphic component that forms the steepest inclined surface and principal element of many hillsides. Backslopes in profile are commonly steep, are linear, and may or may not include cliff segments.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Bedding planes. Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bedrock-controlled topography. A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Bottom land. The normal flood plain of a stream, subject to flooding.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Breast height. An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

Brush management. Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Cable yarding. A method of moving felled trees to a nearby central area for transport to a processing facility. Most cable yarding systems involve use of a drum, a pole, and wire cables in an arrangement similar to that of a rod and reel used for fishing. To reduce friction and soil disturbance, felled trees generally are reeled in while one end is lifted or the entire log is suspended.

Canopy. The leafy crown of trees or shrubs. (See Crown.)

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Catena. A sequence, or "chain," of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Channery soil material. Soil material that is, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Coarse textured soil. Sand or loamy sand.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material. Material that is 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

Colluvium. Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies

among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosion. Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cross-slope farming. Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

Culmination of the mean annual increment (CMAI). The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Depth to rock (in tables). Bedrock is too near the surface for the specified use.

Dip slope. A slope of the land surface, roughly determined by and approximately conforming to the dip of the underlying bedrock.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained.* These classes are defined in the "Soil Survey Manual."

Drainage, surface. Runoff, or surface flow of water, from an area.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic).—Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated).—Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

Excess fines (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

Fallow. Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Field moisture capacity. The moisture content of a

soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity.*

Fill slope. A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.

Fine textured soil. Sandy clay, silty clay, or clay.

Firebreak. Area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Fluvial. Of or pertaining to rivers; produced by river action, as a fluvial plain.

Foothill. A steeply sloping upland that has relief of as much as 1,000 feet (300 meters) and fringes a mountain range or high-plateau escarpment.

Footslope. The inclined surface at the base of a hill.

Forb. Any herbaceous plant not a grass or a sedge.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type. A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that is 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water. Water filling all the unblocked pores of the material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

High-residue crops. Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill. A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the

surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Igneous rock. Rock formed by solidification from a molten or partially molten state. Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Karst (topography). The relief of an area underlain by limestone that dissolves in differing degrees, thus forming numerous depressions or small basins.

Knoll. A small, low, rounded hill rising above adjacent landforms.

Landslide. The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Low-residue crops. Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Low strength. The soil is not strong enough to support loads.

Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

Metasedimentary rock. Sedimentary rock, such as shale, siltstone, or sandstone, that has been slightly altered by metamorphic processes, such as heat and pressure. Such rocks retain much of their original appearance and physical properties but have altered mineralogic characteristics. Examples are metasandstone and arkose.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent.* The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Mountain. A natural elevation of the land surface, rising more than 1,000 feet above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides. A mountain can occur as a single, isolated mass or in a group forming a chain or range.

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For

example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan.*

Parent material. The unconsolidated organic and mineral material in which soil forms.

Pebble. A rounded or angular fragment of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. A collection of pebbles is referred to as gravel.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percs slowly (in tables). The slow movement of water through the soil adversely affects the specified use.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

Extremely slow	0.0 to 0.01 inch
Very slow	0.01 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Saprolite. Unconsolidated residual material underlying the soil and grading to hard bedrock below.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Second bottom. The first terrace above the normal flood plain (or first bottom) of a river.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Sinkhole. A depression in the landscape where limestone has been dissolved.

Site index. A designation of the quality of a forest site

based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Nearly level	0 to 2 percent
Gently sloping	2 to 5 percent
Sloping	5 to 12 percent
Moderately steep	12 to 20 percent
Steep	20 to 30 percent
Very steep	30 percent and higher

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Small stones (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a

field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay.* The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The outermost inclined surface at the base of a hill; part of a footslope.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Upland. Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Water bars. Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow. The uprooting and tipping over of trees by the wind.

Tables

Table 1.- Temperature and Precipitation

(Recorded in the period 1962-90 at Athens, Tennessee.)

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have-- Maximum temperature higher than	2 years in 10 will have-- Minimum temperature lower than	Average number of growing degree days*	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 0.10 inch or more	Average snow-fall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January--	46.3	24.4	35.4	70	-4	72	5.67	3.40	7.71	8	3.5
February-	50.6	26.7	38.7	74	2	101	4.67	2.52	6.56	7	1.9
March	61.2	35.8	48.5	82	14	295	6.40	3.37	9.05	8	.3
April----	70.9	44.0	57.5	88	25	526	4.75	3.02	6.32	7	.4
May------	78.5	52.4	65.4	91	34	789	4.88	2.50	6.95	7	.0
June-----	85.7	60.7	73.2	96	44	995	3.65	1.98	5.13	6	.0
July-----	88.3	64.7	76.5	98	53	1,132	4.96	2.60	7.03	8	.0
August	87.5	64.0	75.7	97	53	1,106	4.20	2.10	6.02	6	.0
September	81.8	57.6	69.7	94	39	890	4.23	2.07	6.10	6	.0
October--	71.5	44.2	57.8	85	27	553	3.60	2.19	5.11	5	.0
November-	60.6	36.0	48.3	79	17	277	4.83	3.19	6.33	7	.0
December-	50.3	28.1	39.2	72	6	115	5.22	2.76	7.38	8	.3
Yearly:											
Average-	69.4	44.9	57.2	---	---	---	---	---	--	---	---
Extreme-	105	-16	---	99	-5	---	--				--
Total---	--	---	---	---	---	6,851	57.06	44.21	65.35	83	6.3

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minumum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degrees. F)

Table 2.--Freeze Dates in Spring and Fall

(Recorded in the period 1962-90 at Athens, Tennessee.)

Probability	Temperature: 24° F or lower	28° F or lower	32° F or lower
Last freezing temperature in spring:			
1 year in 10 later than	Apr. 5	Apr. 15	Apr. 27
2 years in 10 later than--	Mar. 31	Apr. 10	Apr. 23
5 years in 10 later than--	Mar. 20	Apr. 1	Apr. 14
First freezing temperature in fall:			
1 year in 10 earlier than	Nov. 2	Oct. 20	Oct. 8
2 years in 10 earlier than--	Nov. 7	Oct. 25	Oct. 13
5 years in 10 earlier than--	Nov. 16	Nov. 4	Oct. 22

Table 3.--Growing Season

(Recorded in the period 1962-90 at Athens, Tennessee.)

Probability	Daily minimum temperature during growing season: Higher than 24° F	Higher than 28° F	Higher than 32° F
	Days	Days	Days
9 years in 10	219	199	171
8 years in 10	226	204	177
5 years in 10	239	216	190
2 years in 10	252	227	202
1 year in 10	259	233	209

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
AaB2	Alcoa loam, 2 to 5 percent slopes, eroded	192	*
AaC2	Alcoa loam, 5 to 12 percent slopes, eroded	1,546	0.6
AaD2	Alcoa loam, 12 to 25 percent slopes, eroded	442	0.2
AcF	Apison-Coile complex, 25 to 60 percent slopes	1,628	0.6
AsC	Apison-Sunlight complex, 5 to 12 percent slopes	928	0.3
AsF	Apison-Sunlight complex, 25 to 60 percent slopes, very rocky	5,009	1.8
At	Atkins-Arkaqua complex, frequently flooded	161	*
BeB	Bellamy silt loam, 1 to 5 percent slopes	885	0.3
Bm	Bloomingdale silty clay loam, occasionally flooded	4,853	1.8
BoC2	Bodine gravelly silt loam, 5 to 12 percent slopes, eroded	10,753	3.9
BoD2	Bodine gravelly silt loam, 12 to 25 percent slopes, eroded	10,173	3.7
BoF2	Bodine gravelly silt loam, 25 to 60 percent slopes, eroded	2,265	0.8
BrE	Bradyville-Rock outcrop complex, 5 to 25 percent slopes	1,414	0.5
BrF	Bradyville-Rock outcrop complex, 25 to 50 percent slopes	365	0.1
CaF	Cataska very channery loam, 35 to 65 percent slopes, very rocky	71	*
CaG	Cataska very channery loam, 65 to 90 percent slopes, very rocky	859	0.3
CqC	Coghill-Apison complex, 5 to 12 percent slopes	1,653	0.6
CqD	Coghill-Apison complex, 12 to 25 percent slopes	1,207	0.4
CnC2	Coile silt loam, 5 to 12 percent slopes, eroded	14,570	5.3
CnD2	Coile silt loam, 12 to 25 percent slopes, eroded	6,446	2.3
CnE3	Coile silt loam, 5 to 35 percent slopes, gullied	1,427	0.5
CoC2	Collegedale silt loam, 5 to 12 percent slopes, eroded	24	*
CrB	Corryton-Needmore complex, 2 to 5 percent slopes, rocky	441	0.2
CtB2	Corryton-Townley complex, 2 to 5 percent slopes, eroded	4,176	1.5
CtC2	Corryton-Townley complex, 5 to 12 percent slopes, eroded	7,024	2.5
CUC	Corryton-Urban land complex, 2 to 12 percent slopes	246	*
DcB2	Decatur silt loam, 2 to 5 percent slopes, eroded	626	0.2
DcC2	Decatur silt loam, 5 to 12 percent slopes, eroded	546	0.2
DcD2	Decatur silt loam, 12 to 20 percent slopes, eroded	6	*
DeB	Dewey silt loam, 2 to 5 percent slopes	603	0.2
DwC2	Dewey silty clay loam, 5 to 12 percent slopes, eroded	7,951	2.9
DwD2	Dewey silty clay loam, 12 to 25 percent slopes, eroded	4,674	1.7
DX	Dumps, landfills	162	*
DY	Dumps, pulpwood processing waste	94	*
Ea	Emory silt loam, 0 to 4 percent slopes, occasionally flooded	55	*
Eo	Etowah loam, occasionally flooded, overwash	7,773	2.8
EtB	Etowah loam, 2 to 5 percent slopes	1,594	0.6
EtC	Etowah loam, 5 to 12 percent slopes	586	0.2
FcB2	Fullerton clay loam, 2 to 5 percent slopes, eroded	377	0.1
FgC2	Fullerton gravelly silt loam, 5 to 12 percent slopes, eroded	29,686	10.7
FgD2	Fullerton gravelly silt loam, 12 to 25 percent slopes, eroded	27,281	9.9
FgE3	Fullerton gravelly silt loam, 5 to 35 percent slopes, gullied	884	0.3
FgF2	Fullerton gravelly silt loam, 25 to 60 percent slopes, eroded	8,531	3.1
FRC	Fullerton-Urban land complex, 2 to 12 percent slopes	1,895	0.7
FRD	Fullerton-Urban land complex, 12 to 25 percent slopes	963	0.3
Ha	Hamblen silt loam, occasionally flooded	10,359	3.7
HrC	Harmiller loam, 5 to 12 percent slopes	769	0.3
KeC	Keener Lostcove complex, 3 to 12 percent slopes, very stony	195	*
KeF	Keener Lostcove complex, 35 to 50 percent slopes, very stony	1,517	0.5
LoD	Lostcove gravelly loam, 12 to 20 percent slopes, stony	1,728	0.6
LoE	Lostcove gravelly loam, 20 to 35 percent slopes, very stony	1,696	0.6
McD	McCamy loam, 12 to 25 percent slopes, rocky	292	0.1
MfF	Minvale and Fullerton soils, 25 to 45 percent slopes	588	0.2
MnC	Minvale gravelly silt loam, 5 to 12 percent slopes	123	*
MnD	Minvale gravelly silt loam, 12 to 25 percent slopes	197	*
NcC	Needmore-Corryton complex, 5 to 12 percent slopes	2,404	0.9
Ne	Neubert loam, frequently flooded	4,036	1.5
NnC	Nonaburg Needmore complex, 5 to 12 percent slopes, very rocky	2,166	0.8
NnD	Nonaburg-Needmore complex, 12 to 25 percent slopes, very rocky	4,079	1.5
NoF	Nonaburg-Needmore-Rock outcrop complex, 25 to 60 percent slopes	1,191	0.4
Pe	Pettyjon silty clay loam, occasionally flooded	151	*
PM	Pits, Mines, and Dumps	438	0.2

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
RhF	Red Hills and Steekee soils, 35 to 80 percent slopes, rocky	6,258	2.3
Rk	Rockdell gravelly loam, occasionally flooded	7,179	2.6
RoF	Rock outcrop-Bradyville complex, 5 to 50 percent slopes	586	0.2
ShB	Shady loam, 2 to 5 percent slopes	474	0.2
ShC	Shady loam, 5 to 12 percent slopes	228	*
St	Steadman silty clay loam, frequently flooded	534	0.2
SuC	Sunlight Apison complex, 5 to 12 percent slopes, very rocky	2,593	0.9
SuD	Sunlight-Apison complex, 12 to 25 percent slopes, very rocky	2,830	1.0
TaB	Tasso loam, 2 to 5 percent slopes	1,996	0.7
TaC	Tasso loam, 5 to 12 percent slopes	2,283	0.8
TeC	Tellico loam, 5 to 12 percent slopes	3,292	1.2
TeE3	Tellico loam, 5 to 35 percent slopes, gullied	1,133	0.4
ThF	Tellico-Red Hills complex, 25 to 65 percent slopes, rocky	5,430	2.0
TkD	Tellico-Steekee complex, 12 to 25 percent slopes	3,840	1.4
To	Toccoa loam, occasionally flooded	161	*
TwB2	Townley-Coile complex, 2 to 5 percent slopes, eroded	3,212	1.2
UDC	Udorthents Urban land complex, 2 to 12 percent slopes	5,112	1.8
UnE	Unicoi gravelly sandy loam, 10 to 35 percent slopes, very rocky	1,015	0.4
UoG	Unicoi-Rock outcrop complex, 50 to 120 percent slopes	1,272	0.5
URC	Urban land, 2 to 12 percent slopes	815	0.3
UU	Urban land-Udorthents complex, rarely flooded	299	0.1
W	Water	2,300	0.8
WaB2	Waynesboro clay loam, 2 to 5 percent slopes, eroded	4,101	1.5
WaC2	Waynesboro clay loam, 5 to 12 percent slopes, eroded	4,147	1.5
WbB2	Waynesboro silt loam, 2 to 5 percent slopes, eroded	1,755	0.6
WbC2	Waynesboro silt loam, 5 to 12 percent slopes, eroded	1,679	0.6
WNC	Waynesboro-Urban land complex, 2 to 12 percent slopes	1,137	0.4
WoB	Wolftever silt loam, 1 to 5 percent slopes, occasionally flooded	5,822	2.1
WoC	Wolftever silt loam, 5 to 12 percent slopes	243	*
	Total	276,700	100.0

* Less than 0.05 percent. The combined extent of the soils assigned an asterisk in the "Percent" column is about 0.9 percent of the survey area.

Table 5a. Land Capability and Yields per Acre of Crops and Silage

(Yields are those that can be expected under a high level of management. They are for nonirrigated areas. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil.)

Map symbol and soil name	Land capability	Corn	Corn silage	Small grain silage	Soybeans	Wheat
		Bu	Tons	Tons	Bu	Bu
AaB2:						
Alcoa	2e	95.00	19.00	8.00	33.00	52.00
AaC2:						
Alcoa	3e	80.00	16.00	7.50	29.00	48.00
AaD2:						
Alcoa	4e	72.00	14.00	7.00	27.00	45.00
AcF:						
Apison	7e	---	---	---	---	---
Coile	7e	---	---	---	---	---
AsC:						
Apison	3e	80.00	---	---	---	---
Sunlight	6e	---	---	---	---	---
AsF:						
Apison	7e	--				
Sunlight	7e	---	---	--	---	---
At:						
Atkins	4w	100.00	20.00	---	33.00	---
Arkaqua	3w	115.00	23.00	---	40.00	35.00
BeB:						
Bellamy	2e	105.00	21.00	8.50	38.00	55.00
Bm:						
Bloomingdale	4w	85.00	---	--	38.00	---
BoC2:						
Bodine	4s	72.00	14.00	6.00	26.00	38.00
BoD2:						
Bodine	6s	---	---	--	---	---
BoF2:						
Bodine	7s	--	---	---	---	---
BrE:						
Bradyville	4e	---	---	---	---	---
Rock outcrop	8s	---	---	---	---	---
BrF:						
Bradyville	7e	--	---	---	---	---
Rock outcrop	8s	---	---	---	---	---
CaF:						
Cataska	7s	---	---	---	---	--

Table 5a.--Land Capability and Yields per Acre of Crops and Silage--Continued

Map symbol and soil name	Land capability	Corn	Corn silage	Small grain silage	Soybeans	Wheat
		Bu	Tons	Tons	Bu	Bu
CaG:						
Cataska	7s	---	---	---	---	---
CgC:						
Coghill	3e	85.00	17.00	7.50	29.00	48.00
Apison	3e	80.00	16.00	7.00	25.00	45.00
CgD:						
Coghill	4e	75.00	---	---	---	
Apison	4e	70.00	---	---	---	---
CnC2:						
Coile	4e	50.00	10.00	4.60	20.00	30.00
CnD2:						
Coile	6e	--	---		---	---
CnE3:						
Coile	7e	---	---	--	---	---
CoC2:						
Collegedale	4e	75.00	15.00	7.00	30.00	45.00
CrB:						
Corryton	2e	90.00	18.00	7.00	30.00	45.00
Needmore	3e	60.00	12.00	5.50	24.00	35.00
CtB2:						
Corryton	2e	90.00	18.00	7.00	30.00	45.00
Townley	3e	60.00	12.00	5 50	24.00	35.00
CtC2:						
Corryton	3e	80.00	16.00	7.00	30.00	45.00
Townley	4e	60.00	12.00	5.50	24.00	35.00
CUC:						
Corryton	3e	- -		---	---	---
Urban land.						
DcB2:						
Decatur	2e	115.00	23.00	8.50	35.00	55.00
DcC2:						
Decatur	3e	90.00	18.00	6.00	30.00	40.00
DcD2:						
Decatur	4e	80.00	16.00	6.00	30.00	40.00
DeB:						
Dewey	2e	105.00	21.00	8.50	35.00	55.00
DwC2:						
Dewey	3e	90.00	18.00	7.50	30.00	50.00
DwD2:						
Dewey	4e	85.00	17.00	7.00	28.00	45.00

Table 5a.--Land Capability and Yields per Acre of Crops and Silage--Continued

Map symbol and soil name	Land capability	Corn	Corn silage	Small grain silage	Soybeans	Wheat
		Bu	Tons	Tons	Bu	Bu
DX:						
Dumps, landfills.						
DY:						
Dumps, pulpwood processing waste.						
Ea:						
Emory-------------------	2w	110.00	22.00	9.00	35.00	60.00
Eo:						
Etowah------------------	2w	110.00	22.00	8.50	35.00	55.00
EtB:						
Etowah------------------	2e	110.00	22.00	8.50	35.00	55.00
EtC:						
Etowah------------------	3e	95.00	19.00	8.50	32.00	55.00
FcB2:						
Fullerton---------------	2e	80.00	16.00	7.50	30.00	50.00
FgC2:						
Fullerton---------------	3e	70.00	14.00	6.00	26.00	40.00
FgD2:						
Fullerton---------------	4e	65.00	13.00	---	25.00	35.00
FgE3:						
Fullerton---------------	6e	---	---	---	---	---
FgF2:						
Fullerton---------------	7e	---	---	---	---	---
FRC:						
Fullerton---------------	3e	---	---	---	---	---
Urban land.						
FRD:						
Fullerton---------------	4e	---	---	---	---	---
Urban land.						
Ha:						
Hamblen-----------------	2w	95.00	19.00	7.50	38.00	48.00
HrC:						
Harmiller---------------	4e	---	---	---	---	---
KeC:						
Keener------------------	3e	95.00	---	---	---	---
Lostcove----------------	7s	---	---	---	---	---
KeF:						
Keener------------------	7e	---	---	---	---	---
Lostcove----------------	7s	---	---	---	---	---
LoD:						
Lostcove----------------	7s	---	---	---	---	---

Table 5a.--Land Capability and Yields per Acre of Crops and Silage--Continued

Map symbol and soil name	Land capability	Corn	Corn silage	Small grain silage	Soybeans	Wheat
		Bu	Tons	Tons	Bu	Bu
LoE:						
Lostcove	7s	---	---	---		---
McD:						
McCamy	6e	---	---	---	---	---
MfF:						
Minvale	7e	---	---	---	---	---
Fullerton	7e	---	---	---		---
MnC:						
Minvale	3e	80.00	16.00	7.00	30.00	45.00
MnD:						
Minvale	4e	60.00	12.00	6.00	30.00	40.00
NcC:						
Needmore	4e	60.00	12.00	5.50	24.00	35.00
Corryton	3e	75.00	15.00	7.00	30.00	45.00
Ne:						
Neubert	2w	95.00	19.00	7.50	40.00	48.00
NnC:						
Nonaburg	6s	---	---	---	---	---
Needmore	4e	60.00	12.00	5.50	24.00	35.00
NnD:						
Nonaburg	6s	---	---	---	---	---
Needmore	6e	---	---	---	---	---
NoF:						
Nonaburg	7s	---	---	---	---	---
Needmore	7e	---	---	---	---	---
Rock outcrop	8s		---	---	---	---
Pe:						
Pettyjon	2w	120.00	24.00	7.50	42.00	50.00
PM:						
Pits, Mines, Dumps.						
RhF:						
Red Hills	7e	---	---	---	---	
Steekee	7e	---	---	---	---	---
Rk:						
Rockdell	3w	65.00	13.00	---	20.00	30.00
RoF:						
Rock outcrop	8s	---	---	---	---	---
Bradyville	7e	---	---	---	---	---
ShB:						
Shady	2e	120.00	24.00	9.00	45.00	60.00

Table 5a.--Land Capability and Yields per Acre of Crops and Silage Continued

Map symbol and soil name	Land capability	Corn	Corn silage	Small grain silage	Soybeans	Wheat
		Bu	Tons	Tons	Bu	Bu
ShC:						
Shady	3e	120.00	24.00	9.00	45.00	60.00
St:						
Steadman	2w	120.00	24.00	7.50	45.00	50.00
SuC:						
Sunlight	6e	---	---	---	---	---
Apison	3e	80.00	---		-	---
SuD:						
Sunlight	7e	---	---	---	---	---
Apison	4e	---	---	---	---	---
TaB:						
Tasso	2e	95.00	19.00	7.00	32.00	45.00
TaC:						
Tasso	3e	95.00	19.00	7.00	32.00	45.00
TeC:						
Tellico	3e	85.00	17.00	7.00	30.00	45.00
TeE3:						
Tellico	6e	---	---	---	---	---
ThF:						
Tellico	7e	---	---	---	---	
Red Hills	7e	---	-		--	---
TkD:						
Tellico	4e	70.00	---	---	---	---
Steekee	6e	---	---	---	---	---
To:						
Toccoa	2w	110.00	22.00	8.50	40.00	55.00
TwB2:						
Townley	3e	60.00	12.00	5.50	24.00	35.00
Coile	4e	50.00	10.00	4.60	20.00	30.00
UDC:						
Udorthents.						
Urban land.						
UnE:						
Unicoi	7s	---	---	---	---	---
UoG:						
Unicoi	7s	---	---	---	---	---
Rock outcrop	8s	---	---	---	---	
URC:						
Urban land.						

Table 5a.--Land Capability and Yields per Acre of Crops and Silage--Continued

Map symbol and soil name	Land capability	Corn	Corn silage	Small grain silage	Soybeans	Wheat
		Bu	Tons	Tons	Bu	Bu
UU:						
Urban land						
Udorthents.						
W:						
Water.						
WaB2:						
Waynesboro	2e	90.00	18.00	6 00	30.00	40.00
WaC2:						
Waynesboro	3e	80.00	16.00	6.00	28.00	40.00
WbB2:						
Waynesboro	2e	100.00	20.00	7.00	35.00	45.00
WbC2:						
Waynesboro	3e	90.00	18.00	6.00	30.00	40.00
WNC:						
Waynesboro	3e	---	---	---	---	---
Urban land.						
WoB:						
Wolftever	2w	75.00	15.00	6.00	30.00	40.00
WoC:						
Wolftever	3e	65.00	13.00	7.00	30.00	45.00

Table 5b.--Land Capability and Yields per Acre of Hay and Pasture

(Yields are those that can be expected under a high level of management. They are for nonirrigated areas. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil.)

Map symbol and soil name	Land capability	Alfalfa hay	Grass hay	Grass-legume hay	Grass-legume pasture
		Tons	Tons	Tons	AUM
AaB2:					
Alcoa	2e	3.50	2.70	3.20	8.10
AaC2:					
Alcoa	3e	3.20	2.50	3.00	7.60
AaD2:					
Alcoa	4e	---	2.00	2.40	6.10
AcF:					
Apison	7e	---		---	---
Coile	7e	---	---	---	
AsC:					
Apison	3e	---	2.20	2.50	6.00
Sunlight	6e	---	1.80	2.00	5.00
AsF:					
Apison	7e	---			---
Sunlight	7e	---	---	---	---
At:					
Atkins	4w	---	2.50	3.00	6.50
Arkaqua	3w	---	3.00	3.50	8.80
BeB:					
Bellamy	2e	---	3.00	3.50	8.80
Bm:					
Bloomingdale	4w	---	2.50	3.00	7.60
BoC2:					
Bodine	4s	---	1.50	1.80	4.60
BoD2:					
Bodine	6s	---	1.30	1.50	3.80
BoF2:					
Bodine	7s	---	---	---	3.00
BrE:					
Bradyville	4e	---	---	---	5.50
Rock outcrop	8s	---	---	---	---
BrF:					
Bradyville	7e	---	---	---	---
Rock outcrop	8s	---	---	---	---
CaF:					
Cataska	7s	---	---	---	---

Table 5b.--Land Capability and Yields per Acre of Hay and Pasture--Continued

Map symbol and soil name	Land capability	Alfalfa hay	Grass hay	Grass-legume hay	Grass-legume pasture
		Tons	Tons	Tons	AUM
CaG:					
Cataska	7s	---	---	---	---
CgC:					
Coghill	3e	---	2.50	3.00	7.60
Apison	3e	---	2.20	2.60	6.60
CgD:					
Coghill	4e	---	2.20	2.60	6.60
Apison	4e	---	2.00	2.30	5.80
CnC2:					
Coile	4e	---	1.80	2.10	5.30
CnD2:					
Coile	6e	---	1.50	1.70	4.30
CnE3:					
Coile	7e	---	1.50	1.70	4.30
CoC2:					
Collegedale	4e	3.20	2.50	3.00	7.60
CrB:					
Corryton	2e	3.50	2.70	3.20	8.10
Needmore	3e	---	2.00	2.40	6.00
CtB2:					
Corryton	2e	3.50	2.70	3.20	8.10
Townley	3e	---	2.00	2.40	6.00
CtC2:					
Corryton	3e	3.20	2.50	3.00	7.60
Townley	4e	---	1.80	2.10	5.30
CUC:					
Corryton	3e	---	---	---	---
Urban land.					
DcB2:					
Decatur	2e	3.90	3.00	3.50	8.80
DcC2:					
Decatur	3e	3.90	3.00	3.50	8.80
DcD2:					
Decatur	4e	---	2.70	3.20	8.10
DeB:					
Dewey	2e	3.90	3.00	3.50	8.80
DwC2:					
Dewey	3e	3.50	2.70	3.20	8.10
DwD2:					
Dewey	4e	---	2.40	2.80	7.10

Table 5b.--Land Capability and Yields per Acre of Hay and Pasture--Continued

Map symbol and soil name	Land capability	Alfalfa hay	Grass hay	Grass-legume hay	Grass legume pasture
		Tons	Tons	Tons	AUM
DX:					
Dumps, landfills.					
DY:					
Dumps, pulpwood processing waste.					
Ea:					
Emory	2w	---	3.00	3.50	8.80
Eo:					
Etowah	2w	---	3.00	3.50	8.80
EtB:					
Etowah	2e	3.90	3.00	3.50	8.80
EtC:					
Etowah	3e	3.50	2.70	3.20	8.10
FcB2:					
Fullerton	2e	3 20	2.50	3.00	7.60
FgC2:					
Fullerton	3e	2.90	2.20	2.60	6.60
FgD2:					
Fullerton	4e	---	1.80	2.10	5.30
FgE3:					
Fullerton	6e	---	---	---	4.50
FgF2:					
Fullerton	7e	---	---	---	---
FRC:					
Fullerton	3e	--	---	---	---
Urban land.					
FRD:					
Fullerton	4e	---	---	---	---
Urban land.					
Ha:					
Hamblen	2w	---	2.50	3.00	7.60
HrC:					
Harmiller	4e		--	---	---
KeC:					
Keener	3e	---	2.50	3.00	7.60
Lostcove	7s	---	---	---	6.00
KeF:					
Keener	7e	---	---	---	---
Lostcove	7s	---	---	---	---
LoD:					
Lostcove	7s	---	---		5.00

Table 5b.--Land Capability and Yields per Acre of Hay and Pasture--Continued

Map symbol and soil name	Land capability	Alfalfa hay	Grass hay	Grass-legume hay	Grass-legume pasture
		Tons	Tons	Tons	AUM
LoE:					
Lostcove	7s	---	---	---	-
McD:					
McCamy	6e	---	---	---	---
MfF:					
Minvale	7e	---	---	---	6.00
Fullerton	7e	---	---		4.50
MnC:					
Minvale	3e	3.20	2.50	3.00	7.60
MnD:					
Minvale	4e	---	2.20	2.60	6.60
NcC:					
Needmore	4e	---	1.80	2.20	5.60
Corryton	3e	3.20	2.50	3.00	7.60
Ne:					
Neubert	2w	---	2.50	3.00	7.60
NnC:					
Nonaburg	6s	---	1.50	1.80	4.60
Needmore	4e	---	1.80	2.20	5.60
NnD:					
Nonaburg	6s	---	1.50	1.80	4.60
Needmore	6e	---	1.60	1.90	4.80
NoF:					
Nonaburg	7s	---	---	---	---
Needmore	7e	---		---	---
Rock outcrop	8s	---	---	---	
Pe:					
Pettyjon	2w	---	3.00	3.50	8.80
PM:					
Pits, Mines, Dumps.					
RhF:					
Red Hills	7e	---	---	---	
Steekee	7e	---	---	---	---
Rk:					
Rockdell	3w	---	2.20	2.60	6.60
RoF:					
Rock outcrop	8s	---	---	---	---
Bradyville	7e	---	---	---	---
ShB:					
Shady	2e	3.90	3.00	3.50	8.80

Table 5b.--Land Capability and Yields per Acre of Hay and Pasture--Continued

Map symbol and soil name	Land capability	Alfalfa hay	Grass hay	Grass-legume hay	Grass-legume pasture
		Tons	Tons	Tons	AUM
ShC:					
Shady	3e	3.50	2.70	3.20	8.10
St:					
Steadman	2w	---	2.50	3.00	7.60
SuC:					
Sunlight	6e	---	1.80	2.10	5.30
Apison	3e	---	2.20	2.60	6.60
SuD:					
Sunlight	7e	---	1.50	1.80	4.50
Apison	4e	---	2.00	2.40	6.10
TaB:					
Tasso	2e	---	2.50	3.00	7.60
TaC:					
Tasso	3e	---	2.20	2.60	6.60
TeC:					
Tellico	3e	---	2.50	3.00	7.60
TeE3:					
Tellico	6e	---	---	---	4.50
ThF:					
Tellico	7e	---	---	---	4.50
Red Hills	7e	---	---	---	3.50
TkD:					
Tellico	4e	---	2.00	2.40	6.10
Steekee	6e	---	1.50	1.80	4.60
To:					
Toccoa	2w	---	2.70	3.20	8.10
TwB2:					
Townley	3e	---	2.00	2.40	6.00
Coile	4e	---	1.80	2.10	5.30
UDC:					
Udorthents.					
Urban land.					
UnE:					
Unicoi	7s	---	---		
UoG:					
Unicoi	7s	---	---	---	---
Rock outcrop	8s	---	---	---	---
URC:					
Urban land.					

Table 5b.--Land Capability and Yields per Acre of Hay and Pasture--Continued

Map symbol and soil name	Land capability	Alfalfa hay	Grass hay	Grass-legume hay	Grass-legume pasture
		Tons	Tons	Tons	AUM
UU:					
Urban land.					
Udorthents.					
W:					
Water.					
WaB2:					
Waynesboro	2e	3.50	2.70	3.20	8.10
WaC2:					
Waynesboro	3e	3.20	2.50	3.00	7.60
WbB2:					
Waynesboro	2e	3.90	3.00	3.50	8.80
WbC2:					
Waynesboro	3e	3.50	2.70	3.20	8.10
WNC:					
Waynesboro	3e	---	---	---	---
Urban land.					
WoB:					
Wolftever	2w	---	2.50	3.00	7.60
WoC:					
Wolftever	3e	---	2.20	2.60	6.60

Table 6.--Prime Farmland

(Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland. If a soil is prime farmland only under certain conditions, the conditions are specified in parentheses after the soil name.)

Map symbol	Soil name
AaB2	Alcoa loam, 2 to 5 percent slopes, eroded
BeB	Bellamy silt loam, 1 to 5 percent slopes
CtB2	Corryton-Townley complex, 2 to 5 percent slopes, eroded
DcB2	Decatur silt loam, 2 to 5 percent slopes, eroded
DeB	Dewey silt loam, 2 to 5 percent slopes
Ea	Emory silt loam, 0 to 4 percent slopes, occasionally flooded
Eo	Etowah loam, occasionally flooded, overwash
EtB	Etowah loam, 2 to 5 percent slopes
FcB2	Fullerton clay loam, 2 to 5 percent slopes, eroded
Ha	Hamblen silt loam, occasionally flooded
Ne	Neubert loam, frequently flooded (if protected from flooding or not frequently flooded during the growing season)
Pe	Pettyjon silty clay loam, occasionally flooded
ShB	Shady loam, 2 to 5 percent slopes
St	Steadman silty clay loam, frequently flooded (if protected from flooding or not frequently flooded during the growing season)
TaB	Tasso loam, 2 to 5 percent slopes
To	Toccoa loam, occasionally flooded
WaB2	Waynesboro clay loam, 2 to 5 percent slopes, eroded
WbB2	Waynesboro silt loam, 2 to 5 percent slopes, eroded
WoB	Wolftever silt loam, 1 to 5 percent slopes, occasionally flooded

Table 7.--Woodland Management and Productivity

(Absence of an entry indicates that the component generally is not used for woodland.)

Map symbol and soil name	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Suggested trees to plant
AaB2:								
Alcoa	Slight	Slight	Slight	Slight	Severe	loblolly pine	80	black walnut, eastern white pine, loblolly pine, shortleaf pine, yellow poplar
						yellow poplar	90	
						white oak	70	
						southern red oak	70	
AaC2:								
Alcoa	Slight	Slight	Slight	Slight	Severe	loblolly pine	80	black walnut, eastern white pine, loblolly pine, shortleaf pine, yellow poplar
						yellow poplar	90	
						white oak	70	
						southern red oak	70	
AaD2:								
Alcoa	Moderate	Moderate	Slight	Slight	Severe	loblolly pine	80	black walnut, eastern white pine, loblolly pine, shortleaf pine, yellow poplar
						yellow poplar	90	
						white oak	70	
						southern red oak	70	
AcF:								
Apison	Severe	Severe	Moderate	Moderate	Moderate	Virginia pine	70	loblolly pine, shortleaf pine
						loblolly pine	80	
						northern red oak	70	
						shortleaf pine	70	
						yellow poplar	90	
Coile	Severe	Severe	Severe	Severe	Moderate	Virginia pine	60	Virginia pine, loblolly pine, shortleaf pine
						chestnut oak	50	
						loblolly pine	60	
						southern red oak	60	
AsC:								
Apison	Slight	Slight	Slight	Slight	Moderate	Virginia pine	70	loblolly pine, shortleaf pine
						loblolly pine	80	
						northern red oak	70	
						shortleaf pine	70	
						yellow poplar	90	

Table 7.--Woodland Management and Productivity -Continued

Map symbol and soil name	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Suggested trees to plant
AsC:								
Sunlight	Slight	Slight	Moderate	Severe	Slight	Virginia pine	60	loblolly pine,
						chestnut oak	50	shortleaf pine
						loblolly pine	70	
						shortleaf pine	60	
AsF:								
Apison	Severe	Severe	Moderate	Moderate	Moderate	Virginia pine	70	loblolly pine,
						loblolly pine	80	shortleaf pine
						northern red oak	70	
						shortleaf pine	70	
						yellow poplar	90	
Sunlight	Severe	Severe	Severe	Severe	Slight	Virginia pine	60	loblolly pine,
						chestnut oak	50	shortleaf pine
						loblolly pine	70	
						shortleaf pine	60	
At:								
Atkins	Slight	Severe	Severe	Moderate	Severe	American sycamore	---	eastern white pine,
						eastern cottonwood	105	pin oak
						loblolly pine	83	
						pin oak	100	
						red maple	---	
						sweetgum	95	
Arkaqua	Slight	Moderate	Moderate	Slight	Severe	black walnut	100	black walnut,
						eastern white pine	90	eastern white
						shortleaf pine	75	pine, northern red
						yellow poplar	100	oak, yellow poplar
BeB:								
Bellamy	Slight	Slight	Slight	Slight	Moderate	northern red oak	75	loblolly pine,
						sweetgum	90	sweetgum, willow
						yellow poplar	95	oak, yellow poplar
Bm:								
Bloomingdale	Slight	Severe	Severe	Slight	Severe	American sycamore	--	American sycamore,
						sweetgum	80	sweetgum

Table 7.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Suggested trees to plant
BoC2:								
Bodine	Slight	Slight	Moderate	Slight	Moderate	chestnut oak	--	loblolly pine, shortleaf pine
						loblolly pine	---	
						red maple	—	
						shortleaf pine	70	
						southern red oak	70	
BoD2:								
Bodine	Moderate	Moderate	Moderate	Slight	Moderate	chestnut oak	---	loblolly pine, shortleaf pine
						loblolly pine	---	
						red maple		
						shortleaf pine	70	
						southern red oak	70	
BoF2:								
Bodine	Severe	Severe	Moderate	Slight	Moderate	chestnut oak	---	loblolly pine, shortleaf pine
						loblolly pine	---	
						red maple		
						shortleaf pine	70	
						southern red oak	70	
BrE:								
Bradyville	Moderate	Moderate	Slight	Slight	Moderate	Virginia pine		loblolly pine, shortleaf pine, yellow poplar
						eastern redcedar	40	
						hickory		
						southern red oak	70	
						white oak	70	
						yellow poplar	90	
Rock outcrop.								
BrF:								
Bradyville	Moderate	Moderate	Moderate	Slight	Moderate	Virginia pine	---	loblolly pine, shortleaf pine, yellow poplar
						eastern redcedar	40	
						hickory	---	
						southern red oak	70	
						white oak	70	
						yellow poplar	90	
Rock outcrop.								

Table 7.--Woodland Management and Productivity Continued

Map symbol and soil name	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Suggested trees to plant
CaF:								
Cataska	Moderate	Severe	Severe	Severe	Moderate	chestnut oak	40	Virginia pine, loblolly pine
						pitch pine	40	
						scarlet oak	40	
CaG:								
Cataska	Moderate	Severe	Severe	Severe	Moderate	chestnut oak	40	Virginia pine, loblolly pine
						pitch pine	40	
						scarlet oak	40	
CgC:								
Coghill	Slight	Slight	Slight	Slight	Moderate	chestnut oak	--	eastern white pine, loblolly pine, shortleaf pine, white oak, yellow poplar
						northern red oak	70	
						white oak	75	
						yellow poplar	85	
Apison	Slight	Slight	Slight	Slight	Moderate	Virginia pine	70	loblolly pine, shortleaf pine
						loblolly pine	80	
						northern red oak	70	
						shortleaf pine	70	
						yellow poplar	90	
CgD:								
Coghill	Moderate	Moderate	Slight	Slight	Moderate	chestnut oak	--	eastern white pine, loblolly pine, shortleaf pine, white oak, yellow poplar
						northern red oak	70	
						white oak	75	
						yellow poplar	85	
Apison	Moderate	Moderate	Slight	Slight	Moderate	Virginia pine	70	loblolly pine, shortleaf pine
						loblolly pine	80	
						northern red oak	70	
						shortleaf pine	70	
						yellow poplar	90	
CnC2:								
Coile	Moderate	Slight	Moderate	Severe	Moderate	Virginia pine	60	Virginia pine, loblolly pine, shortleaf pine
						chestnut oak	50	
						shortleaf pine	60	
						southern red oak	60	

Table 7.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Suggested trees to plant
CnD2:								
Coile	Severe	Moderate	Moderate	Severe	Moderate	Virginia pine	60	Virginia pine, loblolly pine, shortleaf pine
						chestnut oak	50	
						shortleaf pine	60	
						southern red oak	60	
CnE3:								
Coile	Severe	Severe	Severe	Severe	Moderate	Virginia pine	60	Virginia pine, loblolly pine, shortleaf pine
						chestnut oak	50	
						shortleaf pine	60	
						southern red oak	60	
CoC2:								
Collegedale	Slight	Slight	Slight	Slight	Moderate	Virginia pine	70	eastern white pine, loblolly pine, shortleaf pine, yellow poplar
						loblolly pine	80	
						shortleaf pine	70	
						southern red oak	70	
						white oak	70	
						yellow poplar	90	
CrB:								
Corryton	Slight	Slight	Slight	Slight	Moderate	loblolly pine	80	black walnut, eastern white pine, loblolly pine, shortleaf pine, white oak, yellow poplar
						white oak	70	
						yellow poplar	90	
Needmore	Slight	Slight	Slight	Slight	Moderate	Virginia pine	70	Virginia pine, loblolly pine, shortleaf pine
						eastern redcedar	50	
						northern red oak	70	
						shortleaf pine	70	
CtB2:								
Corryton	Slight	Slight	Slight	Slight	Moderate	loblolly pine	80	black walnut, eastern white pine, loblolly pine, shortleaf pine, white oak, yellow poplar
						white oak	70	
						yellow poplar	90	
Townley	Slight	Slight	Slight	Moderate	Moderate	Virginia pine	70	Virginia pine, loblolly pine
						loblolly pine	70	
						shortleaf pine	60	

Table 7.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Wind throw hazard	Plant competition	Potential productivity: Common trees	Site index	Suggested trees to plant
CtC2:								
Corryton	Slight	Slight	Slight	Slight	Moderate	Virginia pine	70	black walnut, eastern white pine, loblolly pine, shortleaf pine, white oak, yellow poplar
						loblolly pine	80	
						shortleaf pine	71	
Townley	Slight	Slight	Slight	Moderate	Moderate	Virginia pine	70	Virginia pine, loblolly pine
						loblolly pine	70	
						shortleaf pine	60	
CUC:								
Corryton.								
Urban land.								
DcB2:								
Decatur	Slight	Slight	Slight	Slight	Moderate	Virginia pine	70	eastern white pine, loblolly pine, shortleaf pine, yellow poplar
						eastern white pine	80	
						loblolly pine	80	
						shortleaf pine	66	
						yellow poplar	90	
DcC2:								
Decatur	Slight	Slight	Slight	Slight	Moderate	Virginia pine	70	eastern white pine, loblolly pine, shortleaf pine, yellow poplar
						eastern white pine	80	
						loblolly pine	80	
						shortleaf pine	66	
						yellow poplar	90	
DcD2:								
Decatur	Moderate	Moderate	Slight	Slight	Moderate	Virginia pine	70	yellow poplar, shortleaf pine, eastern white pine, loblolly pine
						eastern white pine	80	
						loblolly pine	80	
						shortleaf pine	66	
						yellow poplar	90	
DeB:								
Dewey	Slight	Slight	Slight	Slight	Moderate	Virginia pine	70	black walnut, eastern white pine, loblolly pine, yellow poplar
						loblolly pine	78	
						shortleaf pine	73	
						southern red oak	70	
						white oak	70	
						yellow poplar	90	

Table 7.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Wind throw hazard	Plant competition	Potential productivity: Common trees	Site index	Suggested trees to plant
DwC2:								
Dewey	Slight	Slight	Slight	Slight	Moderate	Virginia pine	70	black walnut, eastern white pine, loblolly pine, yellow poplar
						loblolly pine	78	
						shortleaf pine	73	
						southern red oak	70	
						white oak	70	
						yellow poplar	90	
DwD2:								
Dewey	Moderate	Moderate	Slight	Slight	Moderate	Virginia pine	70	black walnut, eastern white pine, loblolly pine, yellow poplar
						loblolly pine	78	
						shortleaf pine	73	
						southern red oak	70	
						white oak	70	
						yellow poplar	90	
DX:								
Dumps, landfills.								
DY:								
Dumps, pulpwood processing waste.								
Ea:								
Emory	Slight	Slight	Slight	Slight	Severe	black cherry	---	black walnut, loblolly pine, yellow poplar
						black walnut	---	
						loblolly pine	90	
						northern red oak	80	
						white ash	-	
						yellow poplar	104	
Eo:								
Etowah	Slight	Slight	Slight	Slight	Moderate	American sycamore	---	black walnut, loblolly pine, yellow poplar
						loblolly pine	90	
						shortleaf pine	80	
						southern red oak	80	
						yellow poplar	90	
EtB:								
Etowah	Slight	Slight	Slight	Slight	Moderate	loblolly pine	90	black walnut, loblolly pine, white oak, yellow poplar
						shortleaf pine	80	
						southern red oak	80	
						yellow poplar	90	

Table 7.--Woodland Management and Productivity -Continued

Map symbol and soil name	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Suggested trees to plant
EtC:								
Etowah---------	Slight	Slight	Slight	Slight	Moderate	loblolly pine----	90	black walnut,
						shortleaf pine	80	loblolly pine,
						southern red oak----	80	white oak, yellow
						yellow poplar-------	90	poplar
FcB2:								
Fullerton--------------	Slight	Slight	Slight	Slight	Moderate	loblolly pine-------	80	eastern white pine,
						shortleaf pine-- --	70	loblolly pine,
						southern red oak----	70	southern red oak,
						yellow poplar-------	90	yellow poplar
FgC2:								
Fullerton--------------	Slight	Slight	Slight	Slight	Moderate	chestnut oak -------	-	eastern white pine,
						loblolly pine--- --	80	loblolly pine,
						shortleaf pine------	67	southern red oak,
						southern red oak ---	70	yellow poplar
						yellow poplar-------	90	
FgD2:								
Fullerton ---------	Moderate	Moderate	Moderate	Slight	Moderate	chestnut oak--------	---	eastern white pine,
						loblolly pine--- --	80	loblolly pine,
						shortleaf pine-	67	southern red oak,
						southern red oak	70	yellow poplar
						yellow poplar	90	
FgE3:								
Fullerton-- --------	Moderate	Moderate	Moderate	Slight	Moderate	chestnut oak--- ---	---	eastern white pine,
						loblolly pine--- ---	80	loblolly pine,
						shortleaf pine--- --	67	southern red oak,
						southern red oak----	70	yellow poplar
						yellow poplar-------	90	
FgF2								
Fullerton-- ----------	Severe	Severe	Severe	Slight	Moderate	chestnut oak--------	--	eastern white pine,
						loblolly pine--- --	80	loblolly pine,
						shortleaf pine------	67	southern red oak,
						southern red oak --	70	yellow poplar
						yellow poplar-------	90	
FRC:								
Fullerton.								
Urban land.								

Table 7.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Suggested trees to plant
FRD:								
Fullerton.								
Urban land.								
Ha:								
Hamblen	Slight	Slight	Moderate	Slight	Severe	loblolly pine	90	black walnut, eastern white pine, loblolly pine, white oak, yellow poplar
						northern red oak	80	
						yellow poplar	100	
HrC:								
Harmiller	Slight	Slight	Slight	Moderate	Moderate	Virginia pine	---	black oak, eastern white pine, white oak
						black oak	---	
						chestnut oak	66	
						eastern white pine	79	
						hickory	---	
						pitch pine	---	
						scarlet oak	64	
						white oak	54	
KeC:								
Keener	Slight	Slight	Slight	Slight	Moderate	Virginia pine	80	eastern white pine, loblolly pine, northern red oak, shortleaf pine, white oak, yellow poplar
						northern red oak	80	
						yellow poplar	115	
Lostcove	Slight	Slight	Slight	Slight	Moderate	eastern hemlock		eastern white pine, loblolly pine, northern red oak, shortleaf pine, white oak, yellow poplar
						eastern white pine	90	
						northern red oak	79	
						red maple	---	
						sugar maple	64	
						white oak	---	
						yellow poplar	88	
KeF:								
Keener	Severe	Severe	Slight	Moderate	Moderate	Virginia pine	80	eastern white pine, loblolly pine, northern red oak, shortleaf pine, white oak, yellow poplar
						northern red oak	80	
						yellow poplar	115	

Table 7.--Woodland Management and Productivity- Continued

Map symbol and soil name	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Suggested trees to plant
KeF:								
Lostcove ------------	Severe	Severe	Slight	Moderate	Moderate	eastern hemlock-----		eastern white pine,
						eastern white pine--	90	loblolly pine,
						northern red oak----	79	northern red oak,
						red maple- ---------	---	shortleaf pine,
						sugar maple---------	64	white oak, yellow
						white oak	---	poplar
						yellow poplar-------	88	
LoD:								
Lostcove ---------------	Moderate	Moderate	Slight	Slight	Moderate	eastern hemlock-----	---	eastern white pine,
						eastern white pine--	90	loblolly pine,
						northern red oak----	79	northern red oak,
						red maple-----------	---	shortleaf pine,
						sugar maple---------	64	white oak, yellow
						white oak--------	---	poplar
						yellow poplar-------	88	
LoE:								
Lostcove ---------------	Severe	Severe	Slight	Slight	Moderate	eastern hemlock-----	---	eastern white pine,
						eastern white pine--	90	loblolly pine,
						northern red oak----	79	northern red oak,
						red maple-----------	---	shortleaf pine,
						sugar maple---------	64	white oak, yellow
						white oak -----	---	poplar
						yellow poplar-------	88	
McD:								
McCamy ---------	Moderate	Moderate	Moderate	Moderate	Moderate	Virginia pine-------	71	eastern white pine,
						scarlet oak---------	66	loblolly pine,
						shortleaf pine -----	57	northern red oak,
						white oak ----------	67	shortleaf pine
						yellow poplar-------	88	
MfF:								
Minvale	Severe	Severe	Moderate	Slight	Moderate	Virginia pine-------	70	black walnut,
						loblolly pine-------	80	eastern white
						shortleaf pine------	70	pine, loblolly
						yellow poplar-------	90	pine, white oak,
						white oak-----------	70	yellow poplar

Table 7. Woodland Management and Productivity Continued

Map symbol and soil name	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Suggested trees to plant
MfF:								
Fullerton	Severe	Severe	Moderate	Slight	Moderate	chestnut oak	---	eastern white pine, loblolly pine, southern red oak, yellow poplar
						loblolly pine	80	
						shortleaf pine	67	
						southern red oak	70	
						yellow poplar	90	
MnC:								
Minvale	Slight	Slight	Slight	Slight	Moderate	Virginia pine	70	black walnut, eastern white pine, loblolly pine, shortleaf pine, white oak, yellow poplar
						loblolly pine	80	
						shortleaf pine	70	
						white oak	70	
						yellow poplar	90	
MnD:								
Minvale	Moderate	Moderate	Moderate	Slight	Moderate	Virginia pine	70	black walnut, eastern white pine, loblolly pine, shortleaf pine, white oak, yellow poplar
						loblolly pine	80	
						shortleaf pine	70	
						white oak	70	
						yellow poplar	90	
NcC:								
Needmore	Slight	Slight	Slight	Slight	Moderate	Virginia pine	70	Virginia pine, loblolly pine, shortleaf pine
						eastern redcedar	50	
						northern red oak	70	
						shortleaf pine	70	
Corryton	Slight	Slight	Slight	Slight	Moderate	loblolly pine	80	black walnut, eastern white pine, loblolly pine, shortleaf pine, white oak, yellow poplar
						white oak	70	
						yellow poplar	90	
Ne:								
Neubert	Slight	Slight	Slight	Slight	Severe	loblolly pine	90	black walnut, eastern white pine, loblolly pine, shortleaf pine, yellow poplar
						northern red oak	80	
						shortleaf pine	80	
						yellow poplar	100	

Table 7.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Suggested trees to plant
NnC:								
Nonaburg	Slight	Slight	Moderate	Severe	Moderate	chestnut oak	---	Virginia pine,
						eastern redcedar	40	eastern redcedar
Needmore	Slight	Slight	Slight	Slight	Moderate	Virginia pine	70	Virginia pine,
						eastern redcedar	50	loblolly pine,
						northern red oak	70	shortleaf pine
						shortleaf pine	70	
NnD:								
Nonaburg	Moderate	Moderate	Moderate	Severe	Moderate	chestnut oak	---	Virginia pine,
						eastern redcedar	40	eastern redcedar
Needmore	Moderate	Moderate	Slight	Slight	Moderate	Virginia pine	70	Virginia pine,
						eastern redcedar	50	loblolly pine,
						northern red oak	70	shortleaf pine
						shortleaf pine	70	
NoF:								
Nonaburg	Severe	Severe	Moderate	Severe	Moderate	chestnut oak	---	Virginia pine,
						eastern redcedar	40	eastern redcedar
Needmore	Severe	Severe	Moderate	Slight	Moderate	Virginia pine	70	Virginia pine,
						eastern redcedar	50	loblolly pine,
						northern red oak	70	shortleaf pine
						shortleaf pine	70	
Rock outcrop.								
Pe:								
Pettyjon	Slight	Slight	Slight	Slight	Severe	American sycamore	---	black walnut, white
						white oak	80	oak, yellow poplar
						yellow poplar	100	
PM:								
Pits, Mines, Dumps.								
RhF:								
Red Hills	Severe	Severe	Slight	Moderate	Moderate	Virginia pine	65	Virginia pine,
						chestnut oak	---	loblolly pine,
						loblolly pine	80	shortleaf pine
						shortleaf pine	70	
						southern red oak	65	

Table 7. Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Wind throw hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Suggested trees to plant
RhF:								
Steekee	Severe	Severe	Moderate	Severe	Slight	Virginia pine	60	Virginia pine,
						loblolly pine	70	loblolly pine,
						shortleaf pine	60	shortleaf pine
						southern red oak	60	
Rk:								
Rockdell	Slight	Slight	Moderate	Slight	Moderate	American sycamore	98	black walnut,
						common hackberry	---	loblolly pine,
						sweetgum	90	white oak, yellow
						yellow poplar	100	poplar
RoF:								
Rock outcrop.								
Bradyville	Moderate	Moderate	Slight	Slight	Moderate	Virginia pine	---	loblolly pine,
						eastern redcedar	40	shortleaf pine,
						hickory	---	yellow poplar
						southern red oak	70	
						white oak	70	
						yellow poplar	90	
ShB:								
Shady	Slight	Slight	Slight	Slight	Moderate	black walnut	---	black walnut,
						hickory	--	loblolly pine,
						northern red oak	80	white oak, yellow
						southern red oak	80	poplar
						white oak	80	
						yellow poplar	100	
ShC:								
Shady	Slight	Slight	Slight	Slight	Moderate	hickory	---	black walnut,
						southern red oak	80	loblolly pine,
						white oak	80	white oak, yellow
						yellow poplar	100	poplar
St:								
Steadman	Slight	Slight	Slight	Slight	Severe	black walnut	---	black walnut,
						northern red oak	86	eastern white
						white ash	85	pine, loblolly
						white oak	85	pine, white ash,
						yellow poplar	95	yellow poplar

Table 7. Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Suggested trees to plant
SuC:								
Sunlight	Slight	Slight	Moderate	Severe	Slight	Virginia pine	60	loblolly pine, shortleaf pine
						chestnut oak	50	
						loblolly pine	70	
						shortleaf pine	60	
Apison	Slight	Slight	Slight	Slight	Moderate	Virginia pine	70	loblolly pine, shortleaf pine
						loblolly pine	80	
						northern red oak	70	
						shortleaf pine	70	
						yellow poplar	90	
SuD:								
Sunlight	Moderate	Moderate	Moderate	Severe	Slight	Virginia pine	60	loblolly pine, shortleaf pine
						chestnut oak	50	
						loblolly pine	70	
						shortleaf pine	60	
Apison	Moderate	Moderate	Slight	Slight	Moderate	Virginia pine	70	loblolly pine, shortleaf pine
						loblolly pine	80	
						northern red oak	70	
						shortleaf pine	70	
						yellow poplar	90	
TaB:								
Tasso	Slight	Slight	Slight	Slight	Moderate	Virginia pine	70	Virginia pine, loblolly pine, shortleaf pine
						shortleaf pine	70	
						southern red oak	70	
						white oak	70	
						yellow poplar	90	
TaC:								
Tasso	Slight	Slight	Slight	Slight	Moderate	Virginia pine	70	Virginia pine, loblolly pine, shortleaf pine
						shortleaf pine	70	
						southern red oak	70	
						white oak	70	
						yellow poplar	90	
TeC:								
Tellico	Slight	Slight	Slight	Slight	Moderate	Virginia pine	76	eastern white pine, loblolly pine, northern red oak, shortleaf pine, yellow poplar
						eastern white pine	80	
						loblolly pine	80	
						northern red oak	70	
						shortleaf pine	68	
						yellow poplar	90	

Table 7.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Wind throw hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Suggested trees to plant
TeE3:								
Tellico	Moderate	Moderate	Slight	Slight	Moderate	Virginia pine	76	eastern white pine,
						eastern white pine	80	loblolly pine,
						loblolly pine	80	northern red oak,
						northern red oak	70	shortleaf pine,
						shortleaf pine	68	yellow poplar
						yellow poplar	90	
ThF:								
Tellico	Severe	Severe	Slight	Slight	Moderate	Virginia pine	76	eastern white pine,
						eastern white pine	80	loblolly pine,
						loblolly pine	80	northern red oak,
						northern red oak	70	shortleaf pine,
						shortleaf pine	68	yellow poplar
						yellow poplar	90	
Red Hills	Severe	Severe	Slight	Moderate	Moderate	Virginia pine	65	Virginia pine,
						chestnut oak	---	loblolly pine,
						loblolly pine	80	shortleaf pine
						shortleaf pine	70	
						southern red oak	65	
TkD:								
Tellico	Moderate	Moderate	Slight	Slight	Moderate	Virginia pine	76	eastern white pine,
						eastern white pine	80	loblolly pine,
						loblolly pine	80	northern red oak,
						northern red oak	70	shortleaf pine,
						shortleaf pine	68	yellow poplar
						yellow poplar	90	
Steekee	Moderate	Moderate	Moderate	Severe	Slight	Virginia pine	60	Virginia pine,
						loblolly pine	70	loblolly pine,
						shortleaf pine	60	shortleaf pine
						southern red oak	60	
To:								
Toccoa	Slight	Slight	Slight	Slight	Moderate	American sycamore	-	American sycamore,
						loblolly pine	90	loblolly pine,
						southern red oak	--	shortleaf pine,
						sweetgum	100	yellow poplar
						yellow poplar	107	

Table 7.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns					Potential productivity		Suggested trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	
TwB2:								
Townley	Slight	Slight	Slight	Moderate	Moderate	Virginia pine	70	Virginia pine,
						loblolly pine	70	loblolly pine
						shortleaf pine	60	
Coile	Slight	Slight	Moderate	Severe	Moderate	Virginia pine	60	Virginia pine,
						chestnut oak	50	loblolly pine,
						shortleaf pine	60	shortleaf pine
						southern red oak	60	
UDC:								
Udorthents.								
Urban land.								
UnE:								
Unicoi	Moderate	Severe	Moderate	Severe	Slight	Virginia pine	50	Virginia pine
						chestnut oak	50	
						pitch pine	40	
						scarlet oak	50	
UoG:								
Unicoi	Severe	Severe	Moderate	Severe	Slight	Virginia pine	50	Virginia pine
						chestnut oak	50	
						pitch pine	40	
						scarlet oak	50	
Rock outcrop.								
URC:								
Urban land.								
UU:								
Urban land.								
Udorthents.								
W:								
Water.								

Table 7.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Wind throw hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Suggested trees to plant
WaB2: Waynesboro	Slight	Slight	Slight	Slight	Moderate	loblolly pine southern red oak white oak yellow poplar	80 70 70 90	black walnut, eastern white pine, loblolly pine, shortleaf pine, yellow poplar
WaC2: Waynesboro	Slight	Slight	Slight	Slight	Moderate	loblolly pine southern red oak white oak yellow poplar	80 70 70 90	black walnut, eastern white pine, loblolly pine, shortleaf pine, yellow poplar
WbB2: Waynesboro	Slight	Slight	Slight	Slight	Moderate	loblolly pine southern red oak white oak yellow poplar	80 70 70 90	black walnut, eastern white pine, loblolly pine, shortleaf pine, yellow poplar
WbC2: Waynesboro	Slight	Slight	Slight	Slight	Moderate	loblolly pine southern red oak white oak yellow poplar	80 70 70 90	black walnut, eastern white pine, loblolly pine, shortleaf pine, yellow poplar
WNC: Waynesboro.								
Urban land.								
WoB: Wolftever	Slight	Slight	Moderate	Slight	Moderate	loblolly pine southern red oak sweetgum white oak willow oak yellow poplar	80 70 80 70 80 90	loblolly pine, shortleaf pine, white oak, willow oak, yellow poplar

Table 7.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Wind throw hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Suggested trees to plant
WoC:								
Wolftever	Slight	Slight	Moderate	Slight	Moderate	loblolly pine	80	loblolly pine, shortleaf pine, white oak, willow oak, yellow poplar
						southern red oak	70	
						sweetgum	80	
						white oak	70	
						willow oak	80	
						yellow poplar	90	

Table 8.--Recreational Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
AaB2:					
Alcoa	Slight	Slight	Moderate: slope	Slight	Slight
AaC2:					
Alcoa	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
AaD2:					
Alcoa	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
AcF:					
Apison	Severe: slope	Severe: slope	Severe: slope	Severe: slope erodes easily	Severe: slope
Coile	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock
AsC:					
Apison	Moderate: slope percs slowly	Moderate: slope percs slowly	Severe: slope	Severe: erodes easily	Moderate: slope depth to rock
Sunlight	Severe: depth to rock	Severe: depth to rock	Severe: slope small stones depth to rock	Slight	Severe: depth to rock
AsF:					
Apison	Severe: slope	Severe: slope	Severe: slope	Severe: slope erodes easily	Severe: slope
Sunlight	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope small stones depth to rock	Severe: slope	Severe: slope depth to rock
At:					
Atkins	Severe flooding wetness	Severe: wetness	Severe: flooding wetness	Severe: wetness	Severe: flooding wetness
Arkaqua	Severe: flooding	Moderate: wetness	Severe: flooding	Moderate: wetness	Severe: flooding
BeB:					
Bellamy	Moderate: wetness	Moderate: percs slowly wetness	Moderate: slope wetness	Moderate: wetness	Moderate: wetness
Bm:					
Bloomingdale	Severe: flooding wetness	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness

Table 8.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
BoC2:					
Bodine	Severe: small stones	Severe: small stones	Severe: slope small stones	Severe: small stones	Severe: small stones
BoD2:					
Bodine	Severe: slope small stones	Severe: slope small stones	Severe: slope small stones	Severe: small stones	Severe: small stones slope
BoF2:					
Bodine	Severe: slope small stones	Severe: slope small stones	Severe: slope small stones	Severe: slope small stones	Severe: small stones slope
BrE:					
Bradyville	Moderate: slope percs slowly	Moderate: slope percs slowly	Severe: slope	Moderate: slope	Moderate: slope
Rock outcrop.					
BrF:					
Bradyville	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Rock outcrop.					
CaF:					
Cataska	Severe: percs slowly slope depth to rock	Severe: percs slowly slope depth to rock	Severe: slope small stones	Severe: slope	Severe: slope depth to rock
CaG:					
Cataska	Severe: percs slowly slope depth to rock	Severe: percs slowly slope depth to rock	Severe: slope small stones	Severe: slope	Severe: slope depth to rock
CgC:					
Coghill	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
Apison	Moderate: slope	Moderate: slope percs slowly	Severe: slope	Severe: erodes easily	Moderate: slope
CgD:					
Coghill	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
Apison	Severe: slope	Severe: slope	Severe: slope	Severe: erodes easily	Severe: slope
CnC2:					
Coile	Severe: depth to rock	Severe: depth to rock	Severe: slope depth to rock	Slight	Severe: depth to rock
CnD2:					
Coile	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Moderate: slope	Severe: slope depth to rock

Table 8.- Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
CnE3:					
Coile-----------------	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Moderate: slope	Severe: depth to rock slope
CoC2:					
Collegedale------------	Moderate: percs slowly	Moderate: slope	Severe: slope	Severe: erodes easily	Moderate: slope
CrB:					
Corryton---------------	Moderate: percs slowly	Moderate: percs slowly	Moderate: percs slowly slope	Slight	Slight
Needmore---------------	Moderate: percs slowly	Moderate: percs slowly	Moderate: slope	Slight	Moderate: depth to rock
CtB2:					
Corryton---------------	Moderate: percs slowly	Moderate: percs slowly	Moderate: percs slowly slope	Slight	Slight
Townley----------------	Moderate: percs slowly	Moderate: percs slowly	Moderate: slope	Slight	Moderate: depth to rock
CtC2:					
Corryton---------------	Moderate: percs slowly	Moderate: percs slowly	Severe: slope	Slight	Moderate: slope
Townley----------------	Moderate: percs slowly slope	Moderate: percs slowly slope	Severe: slope	Slight	Moderate: slope depth to rock
CUC:					
Corryton---------------	Moderate: percs slowly	Moderate: percs slowly	Moderate: percs slowly slope	Slight	Slight
Urban land-------------	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
DcB2:					
Decatur----------------	Slight	Slight	Moderate: slope	Slight	Slight
DcC2:					
Decatur----------------	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
DcD2:					
Decatur----------------	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
DeB:					
Dewey------------------	Slight	Slight	Moderate: slope	Slight	Slight
DwC2:					
Dewey------------------	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
DwD2:					
Dewey------------------	Severe: slope	Severe: slope	Severe: slope	Slight	Severe: slope

Table 8. Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
DX:					
Dumps, landfills	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
DY:					
Dumps, pulpwood processing waste	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
Ea:					
Emory	Severe: flooding	Slight	Moderate: flooding slope	Slight	Moderate: flooding
Eo:					
Etowah	Severe: flooding	Slight	Moderate. flooding	Slight	Moderate: flooding
EtB:					
Etowah	Slight	Slight	Moderate: slope	Slight	Slight
EtC:					
Etowah	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
FcB2:					
Fullerton	Slight	Slight	Moderate: slope	Slight	Slight
FgC2:					
Fullerton	Moderate: slope small stones	Moderate: slope small stones	Severe: slope small stones	Slight	Moderate: slope
FgD2:					
Fullerton	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
FgE3:					
Fullerton	Severe: slope small stones	Severe: slope small stones	Severe: slope small stones	Moderate: slope	Severe: slope
FgF2:					
Fullerton	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
FRC:					
Fullerton	Moderate: slope small stones	Moderate: slope small stones	Severe: slope	Slight	Moderate: small stones
Urban land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
FRD:					
Fullerton	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
Urban land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable

Table 8. Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
Ha: Hamblen	Severe: flooding	Moderate: wetness	Moderate: flooding wetness	Slight	Moderate: flooding
HrC: Harmiller	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: depth to rock
KeC: Keener	Moderate: large stones	Moderate: large stones	Severe: slope	Slight	Moderate: slope large stones
Lostcove	Moderate: large stones	Moderate: large stones	Severe: slope	Slight	Moderate: small stones large stones slope
KeF: Keener	Severe: slope	Severe: slope	Severe: slope	Slight	Severe: slope
Lostcove	Severe: slope	Severe: slope	Severe: slope	Slight	Severe: slope
LoD: Lostcove	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
LoE: Lostcove	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
McD: McCamy	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
MfF: Minvale	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope small stones
Fullerton	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
MnC: Minvale	Moderate: slope small stones	Moderate: slope small stones	Severe: slope	Slight	Moderate: slope small stones
MnD: Minvale	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
NcC: Needmore	Moderate: percs slowly slope	Moderate: percs slowly slope	Severe: slope	Slight	Moderate: slope depth to rock
Corryton	Moderate: percs slowly slope	Moderate: percs slowly slope	Severe: slope	Slight	Slight

Table 8.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
Ne:					
Neubert	Severe: flooding	Slight	Moderate: flooding wetness	Moderate: wetness	Severe: flooding
NnC:					
Nonaburg	Severe: depth to rock	Severe: depth to rock	Severe: slope depth to rock	Slight	Severe: depth to rock
Needmore	Moderate: percs slowly slope	Moderate: percs slowly slope	Severe: slope	Slight	Moderate: slope depth to rock
NnD:					
Nonaburg	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Moderate: slope	Severe: slope depth to rock
Needmore	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Moderate: slope
NoF:					
Nonaburg	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock
Needmore	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Rock outcrop.					
Pe:					
Pettyjon	Severe: flooding	Slight	Slight	Slight	Moderate: flooding
PM:					
Pits, Mines, Dumps.					
RhF:					
Red Hills	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Steekee	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Severe: depth to rock slope
Rk:					
Rockdell	Severe: flooding	Severe: small stones	Severe: flooding	Slight	Moderate: flooding small stones droughty
RoF:					
Rock outcrop.					
Bradyville	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
ShB:					
Shady	Slight	Slight	Moderate: slope	Slight	Slight

Table 8.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
ShC:					
Shady------------------	Moderate: slope	Moderate: slope	Moderate: slope	Slight	Moderate: slope
St:					
Steadman---------------	Severe: flooding	Moderate: wetness flooding	Severe: flooding	Moderate: wetness flooding	Severe: flooding
SuC:					
Sunlight---------------	Severe: depth to rock	Severe: depth to rock	Severe: slope small stones depth to rock	Slight	Severe: depth to rock
Apison-----------------	Moderate: slope	Moderate: slope	Severe: slope	Severe: erodes easily	Moderate: slope depth to rock
SuD:					
Sunlight---------------	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope small stones depth to rock	Moderate: slope	Severe: slope depth to rock
Apison-----------------	Severe: slope	Severe: slope	Severe: slope	Severe: erodes easily	Severe: slope
TaB:					
Tasso------------------	Moderate: percs slowly	Moderate: percs slowly	Moderate: percs slowly slope	Slight	Slight
TaC:					
Tasso------------------	Moderate: percs slowly slope	Moderate: percs slowly slope	Moderate: percs slowly slope	Slight	Moderate: slope
TeC:					
Tellico----------------	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
TeE3:					
Tellico----------------	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
ThF:					
Tellico----------------	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Red Hills--------------	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
TkD:					
Tellico----------------	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
Steekee----------------	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Moderate: slope	Severe: slope depth to rock
To:					
Toccoa-----------------	Severe: flooding	Slight	Slight	Slight	Moderate: flooding

Table 8.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
TwB2:					
Townley----------	Moderate: percs slowly	Moderate: percs slowly	Moderate: slope	Slight	Moderate: depth to rock
Coile------------------	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Slight	Severe: depth to rock
UDC:					
Udorthents---------	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
Urban land-------------	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
UnE:					
Unicoi-------------	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Severe: large stones depth to rock slope
UoG:					
Unicoi----------------	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Severe: large stones depth to rock slope
Rock outcrop.					
URC:					
Urban land-------------	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
UU:					
Urban land-------------	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
Udorthents---------	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
W:					
Water.					
WaB2:					
Waynesboro-------------	Slight	Slight	Moderate: slope	Slight	Slight
WaC2:					
Waynesboro-------------	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
WbB2:					
Waynesboro----------	Slight	Slight	Moderate: slope	Slight	Slight
WbC2:					
Waynesboro ------------	Moderate: slope	Moderate: slope	Severe: slope	Severe: erodes easily	Moderate: slope
WNC:					
Waynesboro-------------	Slight	Slight	Severe: slope	Slight	Moderate: slope
Urban land -------	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable

Table 8.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
WoB:					
Wolftever	Moderate: percs slowly	Moderate: percs slowly	Moderate: percs slowly slope	Slight	Moderate: flooding
WoC:					
Wolftever	Moderate: percs slowly slope	Moderate: percs slowly slope	Severe: slope	Slight	Moderate: slope

Table 9. Wildlife Habitat

(See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
AaB2:										
Alcoa-------------------	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
AaC2:										
Alcoa--------- ---------	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
AaD2:										
Alcoa--------- ---------	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
AcF:										
Apison-----	Very poor	Very poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
Coile- ---------------	Very poor	Very poor	Fair	Fair	Fair	Very poor	Very poor	Very poor	Fair	Very poor
AsC:										
Apison------ ----------	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Sunlight- --------------	Poor	Poor	Fair	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
AsF:										
Apison----------- ------	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
Sunlight------------ ---	Very poor	Poor	Fair	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
At:										
Atkins -----------	Poor	Fair	Fair	Fair	Fair	Good	Fair	Fair	Fair	Fair
Arkaqua-----------	Poor	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair
BeB:										
Bellamy----- -- --------	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
Bm:										
Blomingdale------------	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good
BoC2:										
Bodine-----------------	Fair	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
BoD2:										
Bodine--------- --------	Poor	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
BoF2:										
Bodine------------------	Very poor	Poor	Poor	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
BrE:										
Bradyville--------------	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor

Table 9.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Wetland plants	Shallow water areas	Potential as habitat for: Openland wildlife	Woodland wildlife	Wetland wildlife
BrE:										
Rock outcrop.										
BrF:										
Bradyville	Very poor	Very poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
Rock outcrop.										
CaF:										
Cataska	Very poor	Poor	Poor	Very poor	Very poor	Very poor	Very poor	Poor	Very poor	Very poor
CaG:										
Cataska	Very poor	Poor	Poor	Very poor	Very poor	Very poor	Very poor	Poor	Very poor	Very poor
CgC:										
Coghill	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Apison	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
CgD:										
Coghill	Fair	Good	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Apison	Fair	Good	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
CnC2:										
Coile	Poor	Poor	Fair	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
CnD2:										
Coile	Very poor	Poor	Fair	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
CnE3:										
Coile	Very poor	Very poor	Fair	Fair	Fair	Very poor	Very poor	Very poor	Fair	Very poor
CoC2:										
Collegedale	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
CrB:										
Corryton	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Needmore	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
CtB2:										
Corryton	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Townley	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor

Table 9.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
CtC2:										
Corryton	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Townley	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
CUC:										
Corryton	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Urban land.										
DcB2:										
Decatur	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
DcC2:										
Decatur	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
DcD2:										
Decatur	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
DeB:										
Dewey	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
DwC2:										
Dewey	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
DwD2:										
Dewey	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
DX:										
Dumps, landfills.										
DY:										
Dumps, pulpwood processing waste.										
Ea:										
Emory	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Eo:										
Etowah	Fair	Fair	Good	Good	Good	Poor	Very poor	Fair	Good	Very poor
EtB:										
Etowah	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
EtC:										
Etowah	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor

Table 9.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
FcB2:										
Fullerton	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
FgC2:										
Fullerton	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
FgD2:										
Fullerton	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
FgE3:										
Fullerton	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
FgF2:										
Fullerton	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
FRC:										
Fullerton	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Urban land.										
FRD:										
Fullerton	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Urban land.										
Ha:										
Hamblen	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
HrC:										
Harmiller	Fair	Good	Good	Fair	Fair	Very poor	Very poor	Good	Fair	Very poor
KeC:										
Keener	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Lostcove	Poor	Fair	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
KeF:										
Keener	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
Lostcove	Very poor	Very poor	Fair	Good	Good	Very poor	Very poor	Very poor	Good	Very poor
LoD:										
Lostcove	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
LoE:										
Lostcove	Poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor

Table 9.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
McD:										
McCamy	Fair	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
MfF:										
Minvale	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
Fullerton	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
MnC:										
Minvale	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
MnD:										
Minvale	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
NcC:										
Needmore	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Corryton	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Ne:										
Neubert	Poor	Fair	Fair	Good	Good	Poor	Poor	Fair	Good	Poor
NnC:										
Nonaburg	Poor	Poor	Fair	Poor	Poor	Very poor	Very poor	Poor	Fair	Very poor
Needmore	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
NnD:										
Nonaburg	Very poor	Poor	Fair	Poor	Poor	Very poor	Very poor	Poor	Fair	Very poor
Needmore	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Fair	Very poor
NoF:										
Nonaburg	Very poor	Very poor	Fair	Poor	Poor	Very poor	Very poor	Very poor	Fair	Very poor
Needmore	Very poor	Very poor	Good	Good	Good	Very poor	Very poor	Poor	Fair	Very poor
Rock outcrop.										
Pe:										
Pettyjon	Poor	Fair	Fair	Good	Good	Poor	Very poor	Fair	Good	Very poor
PM:										
Pits, Mines, Dumps.										

Table 9.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
RhF:										
Red Hills	Very poor	Poor	Good	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
Steekee	Poor	Poor	Fair	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
Rk:										
Rockdell	Poor	Fair	Fair	Fair	Fair	Poor	Poor	Fair	Fair	Very poor
RoF:										
Rock outcrop.										
Bradyville	Very poor	Very poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
ShB:										
Shady	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
ShC:										
Shady	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
St:										
Steadman	Poor	Fair	Fair	Good	Good	Poor	Poor	Fair	Good	Poor
SuC:										
Sunlight	Poor	Poor	Fair	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
Apison	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
SuD:										
Sunlight	Poor	Poor	Fair	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
Apison	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
TaB:										
Tasso	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
TaC:										
Tasso	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
TeC:										
Tellico	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
TeE3:										
Tellico	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
ThF:										
Tellico	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor

Table 9.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
ThF:										
Red Hills	Very poor	Very poor	Good	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
TkD:										
Tellico	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Steekee	Very poor	Poor	Fair	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
To:										
Toccoa	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
TwB2:										
Townley	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Coile	Poor	Poor	Fair	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
UDC:										
Udorthents.										
Urban land.										
UnE:										
Unicoi	Very poor	Very poor	Poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
UoG:										
Unicoi	Very poor	Very poor	Poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
Rock outcrop.										
URC:										
Urban land.										
UU:										
Urban land.										
Udorthents.										
W:										
Water.										
WaB2:										
Waynesboro	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
WaC2:										
Waynesboro	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
WbB2:										
Waynesboro	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor

Table 9.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
WbC2:										
Waynesboro----------	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
WNC:										
Waynesboro--------------	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Urban land.										
WoB:										
Wolftever-----	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
WoC:										
Wolftever---------------	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor

Table 10.--Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
AaB2:						
Alcoa	Moderate: too clayey	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Severe: low strength	Slight
AaC2:						
Alcoa	Moderate: slope too clayey	Moderate: shrink-swell slope	Moderate: shrink-swell slope	Severe: slope	Severe: low strength	Moderate: slope
AaD2:						
Alcoa	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: low strength slope	Severe: slope
AcF:						
Apison	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Coile	Severe: depth to rock slope	Severe: slope	Severe: depth to rock slope	Severe: slope	Severe: slope	Severe: slope depth to rock
AsC:						
Apison	Moderate: slope depth to rock	Moderate: slope	Moderate: slope depth to rock	Severe: slope	Moderate: low strength slope	Moderate: slope depth to rock
Sunlight	Severe: depth to rock	Moderate: slope depth to rock	Severe: depth to rock	Severe: slope	Moderate: slope depth to rock	Severe: depth to rock
AsF:						
Apison	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Sunlight	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope depth to rock
At:						
Atkins	Severe: wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness
Arkaqua	Severe: wetness	Severe: flooding	Severe: flooding wetness	Severe: flooding	Severe: flooding low strength	Severe: flooding
BeB:						
Bellamy	Severe: wetness	Moderate: wetness	Severe: wetness	Moderate: wetness	Moderate: low strength wetness	Moderate: wetness
Bm:						
Bloomingdale	Severe: wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding low strength wetness	Severe: wetness

Table 10.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
BoC2:						
Bodine	Moderate: large stones slope	Moderate: large stones slope	Moderate: large stones slope	Severe: slope	Moderate: large stones slope	Severe: small stones
BoD2:						
Bodine	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: small stones slope
BoF2:						
Bodine	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: small stones slope
BrE:						
Bradyville	Moderate: depth to rock too clayey slope	Moderate: shrink-swell slope	Moderate: depth to rock slope shrink-swell	Severe: slope	Moderate: low strength	Moderate: slope
Rock outcrop.						
BrF:						
Bradyville	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: low strength slope	Severe: slope
Rock outcrop.						
CaF:						
Cataska	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope depth to rock
CaG:						
Cataska	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope depth to rock
CgC:						
Coghill	Severe: cutbanks cave	Moderate: slope	Moderate: slope	Severe: slope	Severe: low strength	Moderate: slope
Apison	Moderate: slope depth to rock	Moderate: slope	Moderate: slope depth to rock	Severe: slope	Moderate: low strength slope	Moderate: slope
CgD:						
Coghill	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: low strength slope	Severe: slope
Apison	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
CnC2:						
Coile	Severe: depth to rock	Moderate: slope depth to rock	Severe: depth to rock	Severe: slope	Moderate: low strength slope depth to rock	Severe: depth to rock

Table 10.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
CnD2:						
Coile	Severe: depth to rock slope	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope depth to rock
CnE3:						
Coile	Severe: depth to rock slope	Severe: slope	Severe: depth to rock slope	Severe: slope	Severe: slope	Severe: depth to rock slope
CoC2:						
Collegedale	Moderate: slope too clayey	Moderate: shrink-swell slope	Moderate: shrink-swell slope	Severe: slope	Severe: low strength	Moderate: slope
CrB:						
Corryton	Moderate: too clayey	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Severe: low strength	Slight
Needmore	Moderate: too clayey depth to rock	Moderate: shrink-swell	Moderate: shrink-swell depth to rock	Moderate: shrink-swell	Severe: low strength	Moderate: depth to rock
CtB2:						
Corryton	Moderate: too clayey	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Severe: low strength	Slight
Townley	Moderate: too clayey depth to rock	Moderate: shrink-swell	Moderate: shrink-swell depth to rock	Moderate: shrink-swell	Severe: low strength	Moderate: depth to rock
CtC2:						
Corryton	Moderate: too clayey slope	Moderate: shrink-swell slope	Moderate: shrink-swell slope	Moderate: shrink-swell slope	Severe: low strength	Moderate: slope
Townley	Moderate: slope too clayey depth to rock	Moderate: shrink-swell slope	Moderate: shrink-swell slope depth to rock	Severe: slope	Severe: low strength	Moderate: slope depth to rock
CUC:						
Corryton	Moderate: too clayey	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell slope	Severe: low strength	Slight
Urban land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
DcB2:						
Decatur	Moderate: too clayey	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: low strength	Slight
DcC2:						
Decatur	Moderate: slope too clayey	Moderate: shrink-swell slope	Moderate: shrink-swell slope	Severe: slope	Moderate: low strength slope	Moderate: slope
DcD2:						
Decatur	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope

Table 10.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
DeB:						
Dewey	Moderate: too clayey	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: low strength shrink-swell	Slight
DwC2:						
Dewey	Moderate: too clayey slope	Moderate: shrink-swell slope	Moderate: shrink-swell slope	Severe: slope	Moderate: low strength shrink-swell slope	Moderate: slope
DwD2:						
Dewey	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
DX:						
Dumps, landfills	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
DY:						
Dumps, pulpwood processing waste	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation. variable
Ea:						
Emory	Moderate: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding low strength	Moderate: flooding
Eo:						
Etowah	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding
EtB:						
Etowah	Slight	Slight	Slight	Slight	Moderate: low strength	Slight
EtC:						
Etowah	Moderate: slope	Moderate: slope	Moderate: slope	Severe: slope	Moderate: low strength slope	Moderate: slope
FcB2:						
Fullerton	Moderate: too clayey	Moderate: shrink-swell	Moderate: shrink swell	Moderate: shrink-swell	Moderate: low strength shrink-swell	Slight
FgC2:						
Fullerton	Moderate: slope too clayey	Moderate: shrink-swell slope	Moderate: shrink-swell slope	Severe: slope	Moderate: low strength shrink-swell slope	Moderate: slope
FgD2:						
Fullerton	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
FgE3:						
Fullerton	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: low strength slope	Severe: slope

Table 10.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
FgF2:						
Fullerton	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
FRC:						
Fullerton	Moderate: slope too clayey	Moderate: shrink-swell slope	Moderate: shrink-swell slope	Moderate: slope	Moderate: low strength shrink-swell slope	Moderate: small stones
Urban land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
FRD:						
Fullerton	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Urban land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
Ha:						
Hamblen	Moderate: flooding wetness	Severe: flooding	Severe: flooding wetness	Severe: flooding	Severe: flooding	Moderate: flooding
HrC:						
Harmiller	Moderate: depth to rock	Moderate: slope	Moderate: slope depth to rock	Severe: slope	Moderate: slope	Moderate: depth to rock
KeC:						
Keener	Moderate: large stones slope	Moderate: large stones slope	Moderate: large stones slope	Severe: slope	Moderate: large stones slope	Moderate: slope large stones
Lostcove	Severe: large stones	Severe: large stones	Severe: large stones	Severe: large stones	Severe: large stones	Moderate: small stones large stones slope
KeF:						
Keener	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Lostcove	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: slope
LoD:						
Lostcove	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: slope
LoE:						
Lostcove	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: slope
McD:						
McCamy	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope

Table 10.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
MfF:						
Minvale	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope, small stones
Fullerton	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
MnC:						
Minvale	Moderate: slope	Moderate: slope	Moderate: slope	Severe: slope	Moderate: low strength, slope	Moderate: slope, small stones
MnD:						
Minvale	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
NcC:						
Needmore	Moderate: slope, too clayey, depth to rock	Moderate: shrink-swell, slope	Moderate: shrink-swell, slope, depth to rock	Severe: slope	Severe: low strength	Moderate: slope, depth to rock
Corryton	Moderate: too clayey, slope	Moderate: shrink-swell, slope	Moderate: shrink-swell, slope	Severe: slope	Severe: low strength	Slight
Ne:						
Neubert	Severe: wetness	Severe: flooding	Severe: flooding, wetness	Severe: flooding	Severe: flooding	Severe: flooding
NnC:						
Nonaburg	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: slope, depth to rock	Severe: low strength, depth to rock	Severe: depth to rock
Needmore	Moderate: slope, too clayey, depth to rock	Moderate: shrink-swell, slope	Moderate: shrink-swell, slope, depth to rock	Severe: slope	Severe: low strength	Moderate: slope, depth to rock
NnD:						
Nonaburg	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: low strength, depth to rock, slope	Severe: slope, depth to rock
Needmore	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: low strength, slope	Moderate: slope
NoF:						
Nonaburg	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: low strength, depth to rock, slope	Severe: slope, depth to rock
Needmore	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: low strength, slope	Severe: slope
Rock outcrop.						

Table 10.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
Pe:						
Pettyjon	Moderate: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding
PM:						
Pits, Mines, Dumps.						
RhF:						
Red Hills	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Steekee	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: depth to rock slope
Rk:						
Rockdell	Moderate: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding small stones droughty
RoF:						
Rock outcrop.						
Bradyville	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: low strength slope	Severe: slope
ShB:						
Shady	Slight	Slight	Slight	Slight	Slight	Slight
ShC:						
Shady	Moderate: slope	Moderate: slope	Moderate: slope	Severe: slope	Moderate: slope	Moderate: slope
St:						
Steadman	Severe: wetness	Severe: flooding	Severe: flooding wetness	Severe: flooding	Severe: flooding low strength	Severe: flooding
SuC:						
Sunlight	Severe: depth to rock	Moderate: slope depth to rock	Severe: depth to rock	Severe: slope	Moderate: slope depth to rock	Severe: depth to rock
Apison	Moderate: slope depth to rock	Moderate: slope	Moderate: slope depth to rock	Severe: slope	Moderate: low strength slope	Moderate: slope depth to rock
SuD:						
Sunlight	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope depth to rock
Apison	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
TaB:						
Tasso	Moderate: wetness	Slight	Moderate: wetness	Slight	Moderate: low strength	Slight

Table 10.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
TaC:						
Tasso	Moderate: slope wetness	Moderate: slope	Moderate: wetness slope	Severe: slope	Moderate: low strength slope	Moderate: slope
TeC:						
Tellico	Moderate: slope too clayey	Moderate: shrink-swell slope	Moderate: shrink-swell slope	Severe: slope	Moderate: low strength slope	Moderate: slope
TeE3:						
Tellico	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
ThF:						
Tellico	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Red Hills	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
TkD:						
Tellico	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Steekee	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope depth to rock
To:						
Toccoa	Moderate: wetness flooding	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding
TwB2:						
Townley	Moderate: too clayey depth to rock	Moderate: shrink-swell	Moderate: shrink-swell depth to rock	Severe: slope	Severe: low strength	Moderate: depth to rock
Coile	Severe: depth to rock	Moderate: depth to rock	Severe: depth to rock	Moderate: depth to rock	Moderate: low strength depth to rock	Severe: depth to rock
UDC:						
Udorthents	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
Urban land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
UnE:						
Unicoi	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: large stones depth to rock slope
UoG:						
Unicoi	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: large stones depth to rock slope
Rock outcrop.						

Table 10.- Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
URC:						
Urban land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
UU:						
Urban land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
Udorthents	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
W:						
Water.						
WaB2:						
Waynesboro	Moderate: too clayey	Slight: slope	Slight	Slight	Moderate: low strength	Slight
WaC2:						
Waynesboro	Moderate: too clayey slope	Moderate: slope	Moderate: slope	Severe: slope	Moderate: slope	Moderate: slope
WbB2:						
Waynesboro	Moderate: too clayey	Slight	Slight	Slight	Moderate: low strength	Slight
WbC2:						
Waynesboro	Moderate: slope too clayey	Moderate: slope	Moderate: slope	Severe: slope	Moderate: low strength slope	Moderate: slope
WNC:						
Waynesboro	Moderate: too clayey	Moderate: slope	Moderate: slope	Moderate: slope	Moderate: low strength	Moderate: slope
Urban land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
WoB:						
Wolftever	Moderate: too clayey wetness flooding	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding
WoC:						
Wolftever	Moderate: too clayey wetness slope	Moderate: shrink-swell slope	Moderate: wetness shrink-swell slope	Severe: slope	Severe: low strength	Moderate: slope

Table 11.--Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
AaB2:					
Alcoa	Moderate: percs slowly	Moderate: seepage slope	Severe: too clayey	Slight	Poor: hard to pack too clayey
AaC2:					
Alcoa	Moderate: percs slowly slope	Severe: slope	Severe: too clayey	Moderate: slope	Poor: hard to pack too clayey
AaD2:					
Alcoa	Severe: slope	Severe: slope	Severe: slope too clayey	Severe: slope	Poor: hard to pack slope too clayey
AcF:					
Apison	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: depth to rock slope
Coile	Severe: depth to rock slope	Severe: slope depth to rock	Severe: depth to rock slope	Severe: depth to rock slope	Poor: depth to rock slope
AsC:					
Apison	Severe: depth to rock	Severe: slope depth to rock	Severe: depth to rock	Severe: depth to rock	Poor: depth to rock
Sunlight	Severe: depth to rock	Severe: slope depth to rock	Severe: depth to rock	Severe: depth to rock	Poor: small stones depth to rock
AsF:					
Apison	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope depth to rock
Sunlight	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope small stones depth to rock
At:					
Atkins	Severe: flooding percs slowly wetness	Severe: flooding seepage wetness	Severe: flooding seepage wetness	Severe: flooding seepage wetness	Poor: wetness
Arkaqua	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Fair: wetness
BeB:					
Bellamy	Severe: percs slowly wetness	Severe: wetness	Severe: wetness	Moderate: wetness	Fair: too clayey wetness

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Bm:					
Bloomingdale	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding too clayey wetness	Severe: flooding wetness	Poor: hard to pack too clayey wetness
BoC2:					
Bodine	Severe: slope	Severe: seepage slope	Severe: seepage slope	Severe: seepage slope	Poor: slope small stones
BoD2:					
Bodine	Moderate: large stones slope	Severe: seepage slope	Severe: seepage	Severe: seepage	Poor: small stones
BoF2:					
Bodine	Severe: slope	Severe: seepage slope	Severe: seepage slope	Severe: seepage slope	Poor: slope small stones
BrE:					
Bradyville	Severe: percs slowly	Severe: slope	Severe: too clayey depth to rock	Moderate: depth to rock slope	Poor: hard to pack too clayey
Rock outcrop.					
BrF:					
Bradyville	Severe: percs slowly slope	Severe: slope	Severe: depth to rock slope too clayey	Severe: slope	Poor: hard to pack too clayey slope
Rock outcrop.					
CaF:					
Cataska	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: seepage small stones depth to rock
CaG:					
Cataska	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: seepage small stones depth to rock
CgC:					
Coghill	Moderate: percs slowly slope	Severe: slope seepage	Severe: seepage	Severe: seepage	Moderate: slope
Apison	Severe: depth to rock	Severe: slope depth to rock	Severe: depth to rock	Severe: depth to rock	Poor: depth to rock
CgD:					
Coghill	Severe: percs slowly slope	Severe: slope seepage	Severe: seepage slope	Severe: slope seepage	Poor: slope

Table 11.--Sanitary Facilities Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
CgD:					
Apison	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: depth to rock slope
CnC2:					
Coile	Severe: depth to rock	Severe: slope depth to rock	Severe: depth to rock	Severe: depth to rock	Poor: depth to rock
CnD2:					
Coile	Severe: slope depth to rock	Severe: slope depth to rock	Severe: depth to rock slope	Severe: depth to rock slope	Poor: depth to rock slope
CnE3:					
Coile	Severe: slope depth to rock	Severe: slope depth to rock	Severe: depth to rock slope	Severe: depth to rock slope	Poor: depth to rock slope
CoC2:					
Collegedale	Severe: percs slowly	Severe: slope	Severe: too clayey	Moderate: slope	Poor: hard to pack too clayey
CrB:					
Corryton	Severe: percs slowly	Moderate: slope	Severe: too clayey depth to rock	Slight	Poor: hard to pack too clayey
Needmore	Severe: percs slowly depth to rock	Severe: slope	Severe: too clayey depth to rock	Severe: depth to rock	Poor: hard to pack too clayey depth to rock
CtB2:					
Corryton	Severe: percs slowly	Moderate: slope	Severe: too clayey depth to rock	Slight	Poor: hard to pack too clayey
Townley	Severe: depth to rock percs slowly	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Poor: hard to pack too clayey depth to rock
CtC2:					
Corryton	Severe: percs slowly	Severe: slope	Severe: depth to rock too clayey slope	Moderate: slope	Poor: hard to pack too clayey
Townley	Severe: percs slowly depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: hard to pack too clayey depth to rock
CUC:					
Corryton	Severe: percs slowly	Moderate: slope	Severe: too clayey depth to rock	Slight	Poor: hard to pack too clayey
Urban land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
DcB2: Decatur	Slight	Moderate: seepage slope	Moderate: too clayey	Slight	Fair: hard to pack too clayey
DcC2: Decatur	Moderate: slope	Severe: slope	Moderate: slope too clayey	Moderate: slope	Fair: hard to pack slope too clayey
DcD2: Decatur	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope
DeB: Dewey	Moderate: percs slowly	Moderate: seepage slope	Moderate: too clayey	Slight	Fair: hard to pack too clayey
DwC2: Dewey	Moderate: percs slowly slope	Severe: slope	Moderate: slope too clayey	Moderate: slope	Fair: hard to pack too clayey slope
DwD2: Dewey	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope
DX: Dumps, landfills	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
DY: Dumps, pulpwood processing waste	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
Ea: Emory	Severe: flooding	Severe: flooding	Severe: flooding wetness	Severe: flooding	Fair: too clayey
Eo: Etowah	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Fair: too clayey
EtB: Etowah	Moderate: percs slowly	Moderate: seepage slope	Moderate: too clayey	Slight	Fair: too clayey
EtC: Etowah	Moderate: percs slowly slope	Severe: slope	Moderate: slope too clayey	Moderate: slope	Fair: too clayey
FcB2: Fullerton	Moderate: percs slowly	Moderate: seepage slope	Moderate: too clayey	Slight	Poor: small stones

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
FgC2:					
Fullerton	Moderate: percs slowly slope	Severe: slope	Moderate: slope too clayey	Moderate: slope	Poor: small stones
FgD2:					
Fullerton	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope small stones
FgE3:					
Fullerton	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope small stones
FgF2:					
Fullerton	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope small stones
FRC:					
Fullerton	Moderate: percs slowly	Moderate: seepage slope	Moderate: too clayey	Slight	Poor: small stones
Urban land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
FRD:					
Fullerton	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope small stones
Urban land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
Ha:					
Hamblen	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Fair: wetness
HrC:					
Harmiller	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope small stones depth to rock
KeC:					
Keener	Moderate: large stones percs slowly	Severe: seepage	Severe: seepage	Moderate: slope	Fair: large stones too clayey
Lostcove	Severe: large stones	Severe: large stones seepage slope	Severe: large stones	Slight	Poor: large stones
KeF:					
Keener	Severe: slope	Severe: seepage slope	Severe: seepage slope	Severe: slope	Poor: slope

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
KeF:					
Lostcove	Severe: large stones slope	Severe: large stones seepage slope	Severe: large stones slope	Severe: slope	Poor: large stones slope
LoD:					
Lostcove	Severe: large stones	Severe: large stones seepage slope	Severe: large stones	Moderate: slope	Poor: large stones
LoE:					
Lostcove	Severe: large stones	Severe: large stones seepage slope	Severe: large stones	Severe: slope	Poor: large stones
McD.					
McCamy	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Poor: slope depth to rock
MfF:					
Minvale	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope
Fullerton	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope small stones
MnC:					
Minvale	Moderate: percs slowly slope	Severe: slope	Moderate: slope too clayey	Moderate: slope	Fair: small stones too clayey
MnD:					
Minvale	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope
NcC:					
Needmore	Severe: percs slowly depth to rock	Severe: slope depth to rock	Severe: too clayey depth to rock	Severe: depth to rock	Poor: hard to pack too clayey depth to rock
Corryton	Severe: percs slowly	Severe: slope	Severe: too clayey depth to rock slope	Moderate: slope	Poor: hard to pack too clayey
Ne:					
Neubert	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Fair: wetness
NnC:					
Nonaburg	Severe: percs slowly depth to rock	Severe: slope depth to rock	Severe: too clayey depth to rock	Severe: depth to rock	Poor: hard to pack too clayey depth to rock

Table 11.- Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
NnC:					
Needmore	Severe: percs slowly depth to rock	Severe: slope depth to rock	Severe: too clayey depth to rock	Severe: depth to rock	Poor: hard to pack too clayey depth to rock
NnD:					
Nonaburg	Severe: percs slowly slope depth to rock	Severe: slope depth to rock	Severe: slope too clayey depth to rock	Severe: slope depth to rock	Poor: hard to pack too clayey depth to rock
Needmore	Severe: percs slowly slope depth to rock	Severe: slope depth to rock	Severe: slope too clayey depth to rock	Severe: slope depth to rock	Poor: hard to pack too clayey depth to rock
NoF:					
Nonaburg	Severe: percs slowly slope depth to rock	Severe: slope depth to rock	Severe: slope too clayey depth to rock	Severe: slope depth to rock	Poor: hard to pack too clayey depth to rock
Needmore	Severe: percs slowly slope depth to rock	Severe: slope depth to rock	Severe: slope too clayey depth to rock	Severe: slope depth to rock	Poor: hard to pack too clayey depth to rock
Rock outcrop.					
Pe:					
Pettyjon	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Good
PM:					
Pits, Mines, Dumps.					
RhF:					
Red Hills	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Poor: slope depth to rock
Steekee	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Poor: slope depth to rock
Rk:					
Rockdell	Severe: flooding	Severe: flooding seepage	Severe: flooding seepage	Severe: flooding seepage	Poor: seepage small stones
RoF:					
Rock outcrop.					
Bradyville	Severe: percs slowly slope	Severe: slope	Severe: too clayey slope depth to rock	Severe: slope	Poor: hard to pack too clayey slope

Table 11. Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
ShB:					
Shady	Moderate: percs slowly	Severe: seepage	Severe: seepage	Severe: seepage	Good
ShC:					
Shady	Moderate: percs slowly slope	Severe: seepage slope	Severe: seepage	Severe: seepage	Good
St:					
Steadman	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Fair: too clayey wetness
SuC:					
Sunlight	Severe: depth to rock	Severe: slope depth to rock	Severe: depth to rock	Severe: depth to rock	Poor: small stones depth to rock
Apison	Severe: depth to rock	Severe: slope depth to rock	Severe: depth to rock	Severe: depth to rock	Poor: depth to rock
SuD:					
Sunlight	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope small stones depth to rock
Apison	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope depth to rock
TaB.					
Tasso	Severe: percs slowly	Moderate: seepage slope	Moderate: too clayey	Slight	Fair: too clayey
TaC:					
Tasso	Severe: percs slowly	Severe: slope	Moderate: slope too clayey	Moderate: slope	Fair: slope too clayey
TeC:					
Tellico	Moderate: percs slowly slope	Severe: slope	Moderate: slope	Moderate: depth to rock	Poor: hard to pack too clayey
TeE3:					
Tellico	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Poor: hard to pack slope too clayey
ThF:					
Tellico	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Poor: hard to pack slope too clayey

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
ThF:					
Red Hills	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Poor: slope depth to rock
TkD:					
Tellico	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Poor: hard to pack too clayey slope
Steekee	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Poor: slope depth to rock
To:					
Toccoa	Severe: flooding wetness	Severe: flooding seepage wetness	Severe: flooding seepage wetness	Severe: flooding seepage wetness	Good
TwB2:					
Townley	Severe: percs slowly depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Poor: hard to pack too clayey depth to rock
Coile	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Poor: depth to rock
UDC:					
Udorthents	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
Urban land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
UnE:					
Unicoi	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Severe: slope depth to rock	Poor: slope small stones depth to rock
UoG:					
Unicoi	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Severe: slope depth to rock	Poor: slope small stones depth to rock
Rock outcrop.					
URC:					
Urban land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
UU:					
Urban land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
Udorthents	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
W:					
Water.					
WaB2:					
Waynesboro-------------	Moderate: percs slowly	Moderate: seepage slope	Moderate: too clayey	Slight	Fair: hard to pack too clayey
WaC2:					
Waynesboro-------------	Moderate: percs slowly slope	Severe: slope	Moderate: slope too clayey	Moderate: slope	Fair: hard to pack slope too clayey
WbB2:					
Waynesboro-------------	Moderate: percs slowly	Moderate: seepage slope	Moderate: too clayey	Slight	Fair: hard to pack too clayey
WbC2:					
Waynesboro-------------	Moderate: percs slowly slope	Severe: slope	Moderate: slope too clayey	Moderate: slope	Fair: hard to pack slope too clayey
WNC:					
Waynesboro-------------	Moderate: percs slowly	Moderate: seepage slope	Moderate: too clayey	Slight	Fair: hard to pack too clayey
Urban land-------------	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
WoB:					
Wolftever--------------	Severe: percs slowly wetness	Severe: wetness	Severe: too clayey wetness	Severe: wetness	Poor: hard to pack too clayey
WoC:					
Wolftever--------------	Severe: percs slowly wetness	Severe: slope wetness	Severe: too clayey wetness	Severe: wetness	Poor: hard to pack too clayey

Table 12.--Construction Materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
AaB2:				
Alcoa	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Fair: too clayey
AaC2:				
Alcoa	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Fair: slope too clayey
AaD2:				
Alcoa	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: slope
AcF:				
Apison	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope
Coile	Poor: depth to rock slope	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock small stones slope
AsC:				
Apison	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: small stones too clayey depth to rock
Sunlight	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones depth to rock
AsF:				
Apison	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope
Sunlight	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
At:				
Atkins	Poor: wetness	Improbable: excess fines	Improbable: excess fines	Poor: wetness
Arkaqua	Fair: wetness	Improbable: excess fines	Improbable: excess fines	Good
BeB:				
Bellamy	Fair: too clayey wetness	Improbable: excess fines	Improbable: excess fines	Fair: small stones
Bm:				
Bloomingdale	Poor: low strength wetness	Improbable: excess fines	Improbable: excess fines	Poor: too clayey wetness

Table 12. Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
BoC2:				
Bodine	Fair: large stones	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones
BoD2:				
Bodine	Fair: large stones slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
BoF2:				
Bodine	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
BrE:				
Bradyville	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: small stones too clayey
Rock outcrop.				
BrF:				
Bradyville	Poor: low strength slope	Improbable: excess fines	Improbable: excess fines	Poor: too clayey small stones slope
Rock outcrop.				
CaF:				
Cataska	Poor: slope depth to rock	Improbable: small stones	Improbable: thin layer	Poor: slope small stones depth to rock
CaG:				
Cataska	Poor: slope depth to rock	Improbable: small stones	Improbable: thin layer	Poor: slope small stones depth to rock
CgC:				
Coghill	Fair: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
Apison	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: small stones too clayey depth to rock
CgD:				
Coghill	Fair: low strength slope	Improbable: excess fines	Improbable: excess fines	Poor: too clayey slope
Apison	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope

Table 12.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
CnC2:				
Coile	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones depth to rock
CnD2:				
Coile	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
CnE3:				
Coile	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
CoC2:				
Collegedale	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
CrB:				
Corryton	Fair: low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
Needmore	Poor: low strength depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
CtB2:				
Corryton	Fair: low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
Townley	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
CtC2:				
Corryton	Fair: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
Townley	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
CUC:				
Corryton	Fair: low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
Urban land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
DcB2:				
Decatur	Fair: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
DcC2:				
Decatur	Fair: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey

Table 12.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
DcD2:				
Decatur	Fair: low strength	Improbable: excess fines	Improbable: excess fines	Poor: slope too clayey
DeB:				
Dewey	Fair: low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
DwC2:				
Dewey	Fair: low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
DwD2:				
Dewey	Fair: low strength shrink-swell slope	Improbable: excess fines	Improbable: excess fines	Poor: slope too clayey
DX:				
Dumps, landfills	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
DY:				
Dumps, pulpwood processing waste	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
Ea:				
Emory	Poor. low strength	Improbable: excess fines	Improbable: excess fines	Fair: small stones
Eo:				
Etowah	Fair: low strength	Improbable: excess fines	Improbable: excess fines	Fair: small stones too clayey
EtB:				
Etowah	Fair: low strength	Improbable: excess fines	Improbable: excess fines	Fair: small stones too clayey
EtC:				
Etowah	Fair: low strength	Improbable: excess fines	Improbable: excess fines	Fair: slope small stones too clayey
FcB2:				
Fullerton	Fair low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones too clayey
FgC2:				
Fullerton	Fair: low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones too clayey

Table 12.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
FgD2:				
Fullerton	Fair: low strength shrink-swell slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones too clayey
FgE3:				
Fullerton	Fair: low strength shrink-swell slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones too clayey
FgF2:				
Fullerton	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones too clayey
FRC:				
Fullerton	Fair: low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones too clayey
Urban land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
FRD:				
Fullerton	Fair: low strength shrink-swell slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones too clayey
Urban land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
Ha:				
Hamblen	Fair: low strength wetness	Improbable: excess fines	Improbable: excess fines	Fair: small stones
HrC:				
Harmiller	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
KeC:				
Keener	Fair: large stones	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim large stones
Lostcove	Poor: large stones	Improbable: large stones excess fines	Improbable: large stones excess fines	Poor: area reclaim small stones
KeF:				
Keener	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim large stones slope

Table 12.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
KeF:				
Lostcove	Poor: large stones slope	Improbable: large stones excess fines	Improbable: large stones excess fines	Poor: area reclaim slope small stones
LoD:				
Lostcove	Poor: large stones	Improbable: large stones excess fines	Improbable: large stones excess fines	Poor: area reclaim slope small stones
LoE:				
Lostcove	Poor: large stones slope	Improbable: large stones excess fines	Improbable: large stones excess fines	Poor: area reclaim slope small stones
McD:				
McCamy	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope
MfF:				
Minvale	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
Fullerton	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones too clayey
MnC:				
Minvale	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones
MnD:				
Minvale	Fair: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
NcC:				
Needmore	Poor: low strength depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
Corryton	Fair: low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
Ne:				
Neubert	Fair: wetness	Improbable: excess fines	Improbable: excess fines	Fair: small stones

Table 12.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
NnC:				
Nonaburg	Poor: area reclaim low strength depth to rock	Improbable: thin layer excess fines	Improbable: thin layer excess fines	Poor: area reclaim thin layer too clayey depth to rock
Needmore	Poor: low strength depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
NnD:				
Nonaburg	Poor: area reclaim low strength depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope too clayey depth to rock
Needmore	Poor: low strength depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope too clayey
NoF:				
Nonaburg	Poor: area reclaim low strength slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim too clayey depth to rock
Needmore	Poor: low strength depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope too clayey
Rock outcrop.				
Pe:				
Pettyjon	Good	Improbable: excess fines	Improbable: excess fines	Good
PM:				
Pits, Mines, Dumps.				
RhF:				
Red Hills	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
Steekee	Poor: area reclaim slope	Improbable: excess fines	Improbable: excess fines	Poor: slope thin layer depth to rock
Rk:				
Rockdell	Fair: large stones	Improbable: small stones	Probable	Poor: area reclaim small stones
RoF:				
Rock outcrop.				
Bradyville	Poor: low strength slope	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones too clayey

Table 12.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
ShB:				
Shady	Good	Improbable: excess fines	Improbable: excess fines	Fair: too clayey
ShC:				
Shady	Good	Improbable: excess fines	Improbable: excess fines	Fair: too clayey
St:				
Steadman	Fair: low strength wetness	Improbable: excess fines	Improbable: excess fines	Fair: too clayey
SuC:				
Sunlight	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones depth to rock
Apison	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: small stones too clayey depth to rock
SuD:				
Sunlight	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Apison	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope
TaB:				
Tasso	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: small stones
TaC:				
Tasso	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: small stones
TeC:				
Tellico	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim
TeE3:				
Tellico	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope
ThF:				
Tellico	Poor: low strength slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope
Red Hills	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
TkD:				
Tellico	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope

Table 12.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
TkD:				
Steekee	Poor: area reclaim	Improbable: excess fines	Improbable: excess fines	Poor: slope thin layer depth to rock
To:				
Toccoa	Good	Improbable: excess fines	Improbable: excess fines	Good
TwB2:				
Townley	Poor: depth to rock	Improbable. excess fines	Improbable: excess fines	Poor: too clayey
Coile	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones depth to rock
UDC:				
Udorthents	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
Urban land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
UnE:				
Unicoi	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
UoG:				
Unicoi	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Rock outcrop.				
URC:				
Urban land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
UU:				
Urban land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
Udorthents	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
W:				
Water.				
WaB2:				
Waynesboro	Fair: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
WaC2:				
Waynesboro	Fair: low strength	Improbable: excess fines	Improbable: excess fines	Poor too clayey
WbB2:				
Waynesboro	Fair: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey

Table 12.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
WbC2:				
Waynesboro	Fair: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
WNC:				
Waynesboro	Fair: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
Urban land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
WoB:				
Wolftever	Fair: low strength wetness	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
WoC:				
Wolftever	Fair: low strength wetness	Improbable: excess fines	Improbable: excess fines	Poor: too clayey

Table 13.--Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Limitations for -- Pond reservoir areas	Limitations for -- Embankments, dikes, and levees	Limitations for -- Aquifer-fed excavated ponds	Features affecting-- Drainage	Features affecting-- Irrigation	Features affecting-- Terraces and diversions	Features affecting-- Grassed waterways
AaB2:							
Alcoa-------	Moderate: seepage slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope	Favorable	Favorable
AaC2:							
Alcoa------------------	Severe: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
AaD2:							
Alcoa---	Severe: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
AcF:							
Apison-----------------	Severe: slope	Severe: piping thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock erodes easily	Limitation: slope erodes easily depth to rock	Limitation: slope erodes easily depth to rock
Coile-----	Severe: depth to rock slope	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope droughty depth to rock	Limitation. slope depth to rock large stones	Limitation: slope droughty depth to rock large stones
AsC:							
Apison----------	Severe: slope	Severe: piping thin layer	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope depth to rock
Sunlight----------	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: droughty depth to rock slope	Limitation: slope depth to rock	Limitation: slope droughty depth to rock
AsF:							
Apison---------------	Severe: slope	Severe: piping thin layer	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope depth to rock

Table 13.--Water Management Continued

Map symbol and soil name	Limitations for: Pond reservoir areas	Limitations for: Embankments, dikes, and levees	Limitations for: Aquifer-fed excavated ponds	Features affecting: Drainage	Features affecting: Irrigation	Features affecting: Terraces and diversions	Features affecting: Grassed waterways
AsF: Sunlight	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: slope depth to rock	Limitation: slope depth to rock droughty
At: Atkins	Severe: seepage	Severe: piping wetness	Severe: slow refill	Limitation: flooding percs slowly	Limitation: flooding percs slowly wetness	Limitation: percs slowly wetness	Limitation: percs slowly wetness
Arkaqua	Moderate: seepage	Severe. wetness	Moderate: slow refill	Limitation: flooding	Limitation: flooding wetness	Limitation: wetness	Favorable
BeB. Bellamy	Moderate: seepage slope	Severe: piping	Severe: no water	Limitation: slope	Limitation: erodes easily slope wetness	Limitation: erodes easily wetness	Limitation: erodes easily
Bm: Bloomingdale	Moderate: seepage	Severe: hard to pack wetness	Moderate: slow refill	Limitation: flooding	Limitation: erodes easily flooding wetness	Limitation: erodes easily wetness	Limitation: erodes easily wetness
BoC2: Bodine	Severe: seepage slope	Severe: seepage	Severe. no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope	Limitation: large stones slope droughty
BoD2. Bodine	Severe: seepage slope	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope	Limitation. large stones slope droughty
BoF2: Bodine	Severe: seepage slope	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope	Limitation: large stones slope droughty

Table 13.- Water Management Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
BrE:							
Bradyville	Severe: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
Rock outcrop.							
BrF:							
Bradyville	Severe: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
Rock outcrop.							
CaF:							
Cataska	Severe: slope depth to rock	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope droughty
CaG:							
Cataska	Severe: slope depth to rock	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope droughty
CgC:							
Coghill	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
Apison	Severe: slope	Severe: piping thin layer	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope depth to rock
CgD:							
Coghill	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
Apison	Severe: slope	Severe: piping thin layer	Severe. no water	Limitation: deep to water	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope depth to rock

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Limitations for-- Embankments, dikes, and levees	Limitations for-- Aquifer-fed excavated ponds	Features affecting-- Drainage	Features affecting-- Irrigation	Features affecting-- Terraces and diversions	Features affecting-- Grassed waterways
CnC2:							
Coile	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope depth to rock droughty
CnD2:							
Coile	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope depth to rock droughty
CnE3:							
Coile	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope depth to rock droughty
CoC2:							
Collegedale	Severe: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily slope	Limitation: erodes easily slope
CrB:							
Corryton	Moderate: depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Favorable	Favorable
Needmore	Moderate: slope depth to rock	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope depth to rock
CtB2:							
Corryton	Moderate: slope depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Favorable	Favorable
Townley	Moderate: slope depth to rock	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: erodes easily depth to rock	Limitation: erodes easily depth to rock

Table 13. Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
CtC2:							
Corryton	Moderate: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
Townley-----------	Severe: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope depth to rock
CUC:							
Corryton---------------	Moderate: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Favorable	Favorable
Urban land-------------	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
DcB2:							
Decatur-------------	Moderate: seepage slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope	Favorable	Favorable
DcC2:							
Decatur	Severe: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
DcD2:							
Decatur-----------	Severe: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
DeB:							
Dewey	Moderate: seepage	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope	Favorable	Favorable
DwC2:							
Dewey ---------------	Severe: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
DwD2:							
Dewey-------------	Severe: slope	Severe: hard to pack	Severe: no water	Limitation deep to water	Limitation: slope	Limitation: slope	Limitation: slope
DX:							
Dumps, landfills-------	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable

Table 13. Water Management -Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
DY: Dumps, pulpwood processing waste	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
Ea: Emory	Moderate: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily flooding	Limitation: erodes easily	Limitation: erodes easily
Eo: Etowah	Moderate: seepage	Moderate: piping	Severe: no water	Limitation: flooding	Limitation: flooding	Favorable	Favorable
EtB: Etowah	Moderate: seepage slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Favorable	Favorable
EtC: Etowah	Severe: slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
FcB2: Fullerton	Moderate: seepage slope	Severe: hard to pack piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: large stones	Limitation: large stones
FgC2: Fullerton	Severe: slope	Severe: hard to pack piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: large stones slope	Limitation: large stones slope
FgD2: Fullerton	Severe: slope	Severe: hard to pack piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: large stones slope	Limitation: large stones slope
FgE3: Fullerton	Severe: slope	Severe: hard to pack piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: large stones slope	Limitation: large stones slope

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
FgF2:							
Fullerton----------	Severe: slope	Severe: hard to pack piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: large stones slope	Limitation: large stones slope
FRC:							
Fullerton----------	Moderate: seepage slope	Severe: hard to pack piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: large stones	Limitation: large stones
Urban land-------------	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
FRD:							
Fullerton	Severe: slope	Severe: hard to pack piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: large stones slope	Limitation: large stones slope
Urban land ----	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
Ha:							
Hamblen----------------	Moderate: seepage	Severe: piping	Moderate: slow refill deep to water	Limitation: flooding	Limitation: flooding wetness	Limitation: wetness	Favorable
HrC:							
Harmiller-- ----- -	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: large stones slope depth to rock	Limitation: large stones slope depth to rock
KeC:							
Keener------------- ---	Moderate: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: large stones slope	Limitation: large stones	Limitation: large stones
Lostcove-- ----------	Moderate: seepage	Severe: large stones seepage	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones	Limitation: large stones droughty
KeF:							
Keener---- ---- -	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: large stones slope	Limitation: large stones slope	Limitation: large stones slope

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
KeF:							
Lostcove	Severe: slope	Severe: large stones seepage	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope	Limitation: large stones slope droughty
LoD:							
Lostcove	Severe: slope	Severe: large stones seepage	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope	Limitation: large stones slope droughty
LoE:							
Lostcove	Severe: slope	Severe: large stones seepage	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope	Limitation: large stones slope droughty
McD:							
McCamy	Severe seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
MfF:							
Minvale	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation. slope	Limitation. slope
Fullerton	Severe. slope	Severe: hard to pack piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: large stones slope	Limitation: large stones slope
MnC:							
Minvale	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
MnD:							
Minvale	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
NcC:							
Needmore	Severe: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope depth to rock
Corryton	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
Ne:							
Neubert	Moderate: seepage	Severe: piping	Moderate: slow refill deep to water	Limitation: flooding	Limitation: flooding wetness	Limitation: wetness	Favorable
NnC:							
Nonaburg	Severe: depth to rock	Severe: hard to pack thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: slope depth to rock	Limitation: slope depth to rock droughty
Needmore	Severe: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope depth to rock
NnD:							
Nonaburg	Severe: slope depth to rock	Severe: hard to pack thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: slope depth to rock	Limitation: slope depth to rock droughty
Needmore	Severe: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope depth to rock
NoF:							
Nonaburg	Severe: slope depth to rock	Severe: hard to pack thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: slope depth to rock	Limitation: slope depth to rock droughty
Needmore	Severe: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope depth to rock
Rock outcrop.							
Pe:							
Pettyjon	Moderate: seepage	Severe: piping	Severe: no water	Limitation: flooding deep to water	Limitation: erodes easily flooding	Limitation: erodes easily	Limitation: erodes easily

Table 13. Water Management Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
PM: Pits, Mines, Dumps.							
RhF:							
Red Hills	Severe: seepage slope	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
Steekee	Severe: slope depth to rock	Severe: piping thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
Rk:							
Rockdell	Severe: seepage	Severe: large stones seepage	Moderate: deep to water	Limitation: flooding deep to water	Limitation: flooding large stones droughty	Limitation: large stones	Limitation: large stones droughty
RoF: Rock outcrop.							
Bradyville	Severe: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
ShB:							
Shady	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Favorable	Favorable
ShC:							
Shady	Severe. seepage	Severe. piping	Severe: no water	Limitation: deep to water	Limitation: slope	Favorable	Favorable
St:							
Steadman	Severe: seepage	Severe: piping wetness	Severe: slow refill	Limitation: flooding	Limitation: flooding wetness	Limitation: erodes easily wetness	Limitation: erodes easily
SuC:							
Sunlight	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: slope depth to rock	Limitation: slope depth to rock droughty

Table 13. Water Management Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
SuC:							
Apison	Severe: slope	Severe: piping thin layer	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope depth to rock
SuD:							
Sunlight	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: slope depth to rock	Limitation: slope depth to rock droughty
Apison	Severe: slope	Severe: piping thin layer	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope depth to rock
TaB:							
Tasso	Moderate: seepage slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily	Limitation: erodes easily
TaC:							
Tasso	Severe: slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily slope	Limitation: erodes easily slope
TeC:							
Tellico	Severe: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
TeE3:							
Tellico	Severe: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
ThF:							
Tellico	Severe: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
Red Hills	Severe: seepage slope	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
TkD:							
Tellico	Severe: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
TkD:							
Steekee	Severe: slope depth to rock	Severe: piping thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
To:							
Toccoa	Severe: seepage	Severe: piping	Moderate: deep to water	Limitation: flooding deep to water	Limitation: flooding	Favorable	Favorable
TwB2:							
Townley	Moderate: slope depth to rock	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: erodes easily depth to rock	Limitation: erodes easily depth to rock
Coile	Severe: depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope depth to rock droughty
UDC:							
Udorthents	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
Urban land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
UnE:							
Unicoi	Severe: slope depth to rock	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope droughty
UoG:							
Unicoi	Severe: slope depth to rock	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope droughty
Rock outcrop.							
URC:							
Urban land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable

Table 13.--Water Management Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Limitations for-- Embankments, dikes, and levees	Limitations for-- Aquifer-fed excavated ponds	Features affecting-- Drainage	Features affecting-- Irrigation	Features affecting-- Terraces and diversions	Features affecting-- Grassed waterways
UU:							
Urban land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
Udorthents	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
W: Water.							
WaB2: Waynesboro	Moderate: seepage slope	Severe: hard to pack piping	Severe: no water	Limitation: deep to water	Limitation: slope	Favorable	Favorable
WaC2: Waynesboro	Severe: slope	Severe: hard to pack piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
WbB2: Waynesboro	Moderate: seepage slope	Severe: hard to pack piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily	Limitation: erodes easily
WbC2: Waynesboro	Severe: slope	Severe: hard to pack piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily slope	Limitation: erodes easily slope
WNC: Waynesboro	Moderate: seepage slope	Severe: hard to pack piping	Severe: no water	Limitation: deep to water	Limitation: slope	Favorable	Favorable
Urban land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
WoB: Wolftever	Moderate: slope	Severe: hard to pack	Severe: slow refill	Limitation: slope	Limitation: erodes easily slope wetness	Limitation: erodes easily wetness	Limitation: erodes easily

Table 13.- Water Management Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
WoC:							
Wolftever	Severe: slope	Severe: hard to pack	Severe: slow refill	Limitation: slope	Limitation: erodes easily slope wetness	Limitation: erodes easily wetness	Limitation: erodes easily

Table 14.--Engineering Index Properties

(Absence of an entry indicates that the data were not estimated.)

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
AaB2:												
Alcoa-----------	0-3	Loam, sandy loam	CL, CL-ML	A-4	---	0 2	95 100	95 100	90 100	60-75	22-32	5-10
	3-62	Sandy clay loam, clay, clay loam, sandy clay	CL, ML, CH, MH	A-6, A-7	---	0-3	95-100	95-100	85-100	55 80	38-53	14-23
AaC2:												
Alcoa	0 3	Loam, sandy loam	CL, CL-ML	A-4	---	0-2	95-100	95 100	90 100	60-75	22-32	5-10
	3-62	Sandy clay loam, clay, clay loam, sandy clay	CL, ML, CH, MH	A-6, A-7	---	0-3	95 100	95 100	85 100	55 80	38 53	14-23
AaD2:												
Alcoa---------	0 3	Loam, sandy loam	CL, CL ML	A 4	--	0-2	95-100	95 100	90 100	60-75	22-32	5-10
	3 62	Sandy clay loam, clay, clay loam, sandy clay	CL, ML, CH, MH	A-6, A-7	---	0-3	95-100	95 100	85 100	55 80	38 53	14 23
AcF:												
Apison----------	0-3	Loam, silt loam	CL ML, CL, ML	A-4	0	0	85-100	75 100	65 90	55-85	18-30	3 10
	3-22	Clay loam, channery clay loam, loam, silty clay loam	CL, CL ML	A 4, A 6	0	0	85-100	75-100	70-95	60 90	20-40	4-18
	22-60	Weathered bedrock	---	---	---	---	---	-	---	---	-	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
AcF:												
Coile----------	0-3	Silt loam, loam	CL-ML, ML, CL	A-6, A-4	---	0-5	85-100	80-100	40-70	40-60	5-30	NP-15
	3-10	Channery clay, very channery silt loam, channery loam	SC, GC, CL, GC-GM	A-6, A-2	---	0-20	50-75	45-70	35-60	25-60	15-40	20-40
	10-18	Very channery clay loam, channery clay, very channery loam	GC, SC, CL	A-6, A-2	---	0-20	35-75	30-70	30-65	25-60	15-40	20-40
	18-24	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
AsC:												
Apison----------	0-3	Loam, silt loam	CL-ML, CL, ML	A-4	0	0	85-100	75-100	65-90	55-85	18-30	3-10
	3-22	Clay loam, channery clay loam, loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	85-100	75-100	70-95	60-90	20-40	4-18
	22-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Sunlight--------	0-3	Channery sandy loam	GC-GM, GC, GM, SM, ML	A-4	0	0-5	50-85	50-80	35-70	35-60	0-40	NP-10
	3-13	Channery loam, very channery clay loam, very channery silt loam	GC, GC-GM, SC	A-2, A-1-b, A-4, A-6	0	0-10	40-65	35-60	35-50	20-40	20-40	4-15
	13-20	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
AsF:												
Apison----------	0-3	Loam, silt loam	CL, CL-ML, ML	A-4	0	0	85-100	75-100	65-90	55-85	18-30	3-10
	3-22	Clay loam, channery clay loam, loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	85-100	75-100	70-95	60-90	20-40	4-18
	22-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
AsF:												
Sunlight	0-3	Channery sandy loam	ML, SM, GC GM, GM, GC	A-4	0	0 5	50 85	50 80	35 70	35 60	0-40	NP-10
	3 13	Channery loam, very channery clay loam, very channery silt loam	GC-GM, GC, SC	A-2, A-4, A-1-b, A-6	0	0-10	40-65	35-60	35-50	20-40	20-40	4-15
	13-20	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
At:												
Atkins	0 6	Silt loam, loam	CL, CL ML, ML	A 4, A 6	0	0	90-100	85-100	75-100	60-95	20-40	3-20
	6-42	Loam, silt loam, sandy loam	ML, SC, CL, SM, SC-SM	A-4, A-6	--	0 5	90 100	85 100	65 100	45 85	20 40	3-20
	42 60	Sandy loam, loamy sand, gravelly sandy loam	SM, GM, SC-SM	A-4	0	0	80-100	65-100	65-100	45-85	20-35	NP-4
Arkaqua	0 7	Silt loam, loam	SM, SC SM	A 2, A 4	0	0	98-100	95-100	60-90	30-50	0-35	NP 7
	7 14	Loam, silt loam, silty clay loam	MH, ML	A-4, A-7, A-5, A 6	0	0	96-100	95-100	80-100	51-90	35-55	4 20
	14 33	Silt loam, sandy loam, loam	ML, CL ML, SM, SC-SM	A-4	0	0	96-100	95-100	60-100	36-70	0 35	NP 7
	33 60	Very gravelly sandy loam, gravelly loamy sand, sandy loam, very gravelly loam	ML, GM, SC SM, SM	A-1-b, A-2-4, A-4	0-5	3-15	53-99	50-97	30-87	20-55	25-35	NP-10

Table 14. Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
BeB:												
Bellamy	0 9	Silt loam, loam	CL ML, CL, ML	A-4	0	0	90-100	85-100	75-100	55-85	20-35	2-10
	9 17	Loam, silt loam	CL, CL-ML	A-4, A-6	0	0	90-100	85-100	75-100	55-85	25 40	6-16
	17 25	Loam, clay loam, silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	90-100	85-100	75-100	55-85	25-40	6-16
	25 58	Loam, clay loam, silt loam, silty clay loam	CL, CL ML	A-4, A-6	0	0	90 100	85-100	75-100	55-85	25-40	6-16
	58 67	Loam, clay loam, sandy clay loam, silty clay	CL ML, CL, SC, SC-SM	A-4, A-6	0	0	90-100	85-100	70-90	40-80	25-40	6-16
Bm:												
Bloomingdale----	0-5	Silty clay loam, silt loam	CL, CL ML	A 4, A-6	0	0	95-100	90-100	85-100	60-95	25-40	5-15
	5-60	Silty clay loam, silty clay, clay	CH, CL	A-6, A-7	0	0	95-100	95-100	90-100	85-95	35-55	12-30
BoC2:												
Bodine----------	0-6	Gravelly silt loam, gravelly loam	CL-ML, GM, GC GM, ML, SM, SC-SM	A 1-b, A-2, A 4	---	5-25	30-90	20 75	20 67	20 62	15-30	NP-7
	6-15	Gravelly silt loam, gravelly loam, cobbly silt loam	GC-GM, SC, SC-SM, GC, GM, SM	A 2, A-4, A-1, A-6	---	10-35	30-70	20-65	20-55	15-45	20-38	3 15
	15 62	Very gravelly silty clay loam, very gravelly clay loam, very gravelly silt loam, very gravelly clay, very gravelly loam, gravelly clay	GM, SC, GC, SM, GW-GM, GW GC	A-2	---	10-35	20-70	15-65	15-45	12-35	26-42	8 16

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
BoD2:												
Bodine----------	0-6	Gravelly silt loam, gravelly loam	CL-ML, SM, GC-GM, GM, ML, SC-SM	A-1-b, A-2, A-4	---	5-25	30 90	20-75	20-67	20-62	15 30	NP-7
	6 15	Gravelly silt loam, gravelly loam, cobbly silt loam	GC-GM, GM, GC, SC, SM, SC-SM	A-1, A-6, A-2, A 4	---	10-35	30-70	20-65	20-55	15-45	20-38	3-15
	15-62	Very gravelly silty clay loam, very gravelly clay loam, very gravelly silt loam, very gravelly clay, very gravelly loam, gravelly clay	GM, GW-GC, GW-GM, GC, SC, SM	A 2	---	10-35	20-70	15-65	15-45	12-35	26-42	8 16
BoF2:												
Bodine ----------	0 6	Gravelly silt loam, gravelly loam	GC-GM, GM, CL ML, ML, SM, SC-SM	A-1-b, A-2, A 4	---	5-25	30-90	20-75	20-67	20-62	15-30	NP 7
	6 15	Gravelly silt loam, gravelly loam, cobbly silt loam	GC, SM, GC-GM, GM, SC, SC-SM	A-2, A-1, A-4, A 6	---	10-35	30-70	20 65	20 55	15 45	20 38	3 15
	15 62	Very gravelly silty clay loam, very gravelly clay loam, very gravelly silt loam, very gravelly clay, very gravelly loam, gravelly clay	GC, GM, SM, GW-GC, GW-GM, SC	A-2	---	10-35	20-70	15-65	15-45	12-35	26 42	8-16

Table 14.--Engineering Index Properties Continued

Map symbol and soil name	Depth	USDA texture	Classification Unified	Classification AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
BrE:												
Bradyville	0-6	Gravelly silt loam	GM, CL-ML, ML, SC-SM, SM, GC-GM	A-1-b, A 2, A 4	---	5-25	60-94	45-80	20-67	20-62	15-30	NP-7
	6-44	Silty clay, clay	CH	A-7	0	0-5	80-100	75-100	65-90	60-85	52-70	26-40
	44-48	Unweathered bedrock	---	---	---	---	---		---	---		
Rock outcrop.												
BrF:												
Bradyville	0-6	Gravelly silt loam	GC-GM, GM, ML, CL-ML, SC-SM, SM	A-1 b, A-2, A-4	---	5-25	60 94	45-80	20-67	20-62	15-30	NP 7
	6-44	Silty clay, clay	CH	A 7	0	0-5	80-100	75-100	65-90	60 85	52 70	26 40
	44-48	Unweathered bedrock			---	---	---	-	---	---		---
Rock outcrop.												
CaF:												
Cataska	0-6	Very channery loam, very channery silt loam	CL-ML, SC-SM, GC-GM, GM, ML	A-4	0-2	3-15	55-80	50-75	45-70	40-60	0-30	NP-6
	6-11	Very channery loam, very channery silt loam, extremely channery loam	GC-GM, GM	A 1, A 2	0 2	10-25	15-50	10-45	10-40	10-35	0-30	NP-7
	11-48	Weathered bedrock	---	---	---	---		---	---	---		

Table 14. -Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
CaG:												
Cataska---------	0-6	Very channery loam, very channery silt loam	GC GM, CL ML, GM, SC-SM, ML	A-4	0-2	3-15	55-80	50-75	45-70	40 60	0-30	NP-6
	6-11	Very channery loam, very channery silt loam, extremely channery loam	GC-GM, GM	A-1, A-2	0-2	10-25	15-50	10 45	10 40	10 35	0-30	NP-7
	11-48	Weathered bedrock	---	---	---	- -	---	.	---	---	---	---
CgC:												
Coghill---------	0-7	Sandy loam, loam	SC-SM, CL-ML, SM, ML	A-2, A-4	---	0-5	90-100	85-100	70 95	20 55	0 30	NP-7
	7-29	Sandy clay, clay, clay loam	SC, CL, CH	A-6, A-7	--	0-5	90 100	85-100	65 100	45-95	35 65	19-40
	29-38	Clay loam, clay, sandy clay loam	SC, CL, SM, ML	A-6, A-7	--	0-5	90-100	85-100	65-100	45-95	25 45	10-30
	38-78	Loam, sandy loam, loamy sand	CL, SM, SC, SC-SM	A-2, A-4	---	0 5	90 100	85-100	65 100	20-50	5-20	2 10
Apison -------	0-3	Loam, silt loam	CL, ML, CL-ML	A-4	0	0	85-100	75 100	65-90	55-85	18-30	3 10
	3 22	Clay loam, channery clay loam, loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	85-100	75-100	70-95	60-90	20-40	4 18
	22-60	Weathered bedrock	---	---	--	---	--		--	---	---	-

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number: 4	Percentage passing sieve number: 10	Percentage passing sieve number: 40	Percentage passing sieve number: 200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
CgD:												
Coghill	0-7	Sandy loam, loam	CL-ML, SC-SM, ML, SM	A-2, A-4	---	0-5	90-100	85-100	70-95	20-55	0-30	NP-7
	7-29	Clay, clay loam, sandy clay	SC, CL, CH	A-6, A-7	---	0-5	90-100	85-100	65-100	45-95	35-65	19-40
	29-38	Clay, clay loam, sandy clay loam	CL, SC, ML, SM	A-6, A-7	---	0-5	90-100	85-100	65-100	45-95	25-45	10-30
	38-78	Sandy loam, loamy sand, loam	SM, CL, SC SM, SC	A-2, A-4	---	0-5	90-100	85-100	65-100	20-50	5-20	2-10
Apison	0-3	Loam, silt loam	CL-ML, CL, ML	A-4	0	0	85-100	75-100	65-90	55-85	18-30	3-10
	3-22	Clay loam, channery clay loam, loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	85-100	75-100	70-95	60-90	20-40	4-18
	22-60	Weathered bedrock		---	---	---	---	---	---	---	---	---
CnC2:												
Coile	0-3	Silt loam, loam	CL-ML, CL, ML	A-6, A-4	---	0-5	85-100	80-100	40-70	40-60	5-30	NP-15
	3-10	Channery clay, very channery silt loam, channery loam	SC, CL, GC, GC-GM	A-6, A-2	---	0-20	50-75	45-70	35-60	25-60	15-40	20-40
	10-18	Very channery loam, channery clay, very channery clay loam	GC, SC, CL	A-6, A-2	---	0-20	35-75	30-70	30-65	25-60	15-40	20-40
	18-24	Weathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
CnD2:												
Coile	0-3	Silt loam, loam	CL-ML, ML, CL	A-6, A-4	---	0-5	85-100	80-100	40-70	40 60	5 30	NP 15
	3-10	Channery clay, very channery silt loam, channery loam	GC, GC-GM, SC, CL	A-6, A-2	---	0-20	50-75	45-70	35-60	25-60	15 40	20-40
	10-18	Very channery clay loam, very channery loam, channery clay	GC, SC, CL	A 2, A-6	---	0-20	35-75	30-70	30-65	25-60	15-40	20-40
	18-24	Weathered bedrock	---	---				---	---	---	---	---
CnE3:												
Coile	0-3	Silt loam, loam	CL-ML, ML, CL	A-6, A-4	---	0-5	85-100	80-100	40-70	40-60	5 30	NP-15
	3-10	Channery clay, channery loam, very channery silt loam	SC, GC, CL, GC-GM	A-6, A 2	---	0-20	50 75	45-70	35-60	25-60	15-40	20 40
	10-18	Very channery clay loam, channery clay, very channery loam	GC, SC, CL	A 6, A 2	---	0-20	35 75	30-70	30-65	25-60	15 40	20-40
	18-24	Weathered bedrock	---	---	---	---		---	---	---	-	
CoC2:												
Collegedale	0 6	Silt loam	CL, CL-ML	A 4, A-6	0	0 2	90-100	85-100	75-95	70-90	24-39	5 16
	6 65	Silty clay, clay	CH, CL	A-7	0	0-2	95 100	90-100	80-95	75-95	41-75	18-42
CrB:												
Corryton	0-9	Silt loam, loam	ML, CL-ML	A-4	0	0	95-100	80 96	75 94	60 90	0-30	NP 7
	9-17	Silty clay loam, clay loam	CL	A 6	0	0	95-100	80-95	75-94	50 85	30 40	11-16
	17 41	Silty clay loam, silty clay, clay	CH, CL	A 6, A 7	0	0	95 100	80-100	75-100	70-99	35-70	14-40
	41-75	Channery silty clay loam, loam, channery silt loam	SC, SM, ML, SC-SM, CL, GC, GM	A 4, A 6	0	0	65-100	55-95	50-90	45-85	30-40	2 20

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
CrB:												
Needmore--------	0-7	Silt loam, silty clay loam	CL-ML, CL, ML	A-4	0	0	95-100	90-100	85-100	80-90	18-30	3-10
	7-12	Silt loam, silty clay loam	CL	A-6	0	0	95-100	80-95	75-94	50-85	30-40	11-16
	12-31	Silty clay, clay, clay loam	CH, CL	A-7	0	0	95-100	90-100	85-100	80-95	43-65	18-35
	31-35	Channery silty clay, channery clay	CH, CL, GC	A-7	---	10-35	55-70	50-70	45-65	40-60	43-65	18-35
	35-40	Weathered bedrock	---			---	---	---	---	---	---	---
CtB2:												
Corryton--------	0-9	Silt loam, loam	CL-ML, ML	A-4	0	0	95-100	80-96	75-94	60-90	0-30	NP-7
	9-17	Silty clay loam, clay loam	CL	A-6	0	0	95-100	80-95	75-94	50-85	30-40	11-16
	17-41	Silty clay loam, silty clay, clay	CH, CL	A-6, A-7	0	0	95-100	80-100	75-100	70-99	35-70	14-40
	41-75	Channery silty clay loam, loam, channery silt loam	GC, GM, ML, SC, SC-SM, CL, SM	A-4, A-6	0	0	65-100	55-95	50-90	45-85	30-40	2-20
Townley-----	0-5	Silt loam, loam	CL, CL-ML, ML	A-4	0	0-2	80-98	70-95	65-90	50-65	15-35	NP-10
	5-28	Silty clay loam, silty clay, clay	MH, ML	A-7	0	0-2	75-95	65-95	60-92	55-90	40-72	14-37
	28-50	Weathered bedrock	---	---	---	---	---		---	---	---	---
CtC2:												
Corryton--------	0-9	Silt loam, loam	CL-ML, ML	A-4	0	0	95-100	80-96	75-94	60-90	0-30	NP-7
	9-17	Silty clay loam, clay loam	CL	A-6	0	0	95-100	80-95	75-94	50-85	30-40	11-16
	17-41	Silty clay loam, silty clay, clay	CH, CL	A-6, A-7	0	0	95-100	80-100	75-100	70-99	35-70	14-40
	41-75	Channery silty clay loam, loam, channery silt loam	CL, SM, GC, GM, ML, SC, SC-SM	A-4, A-6	0	0	65-100	55-95	50-90	45-85	30-40	2-20

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
CtC2:												
Townley	0-5	Silt loam, loam	CL-ML, CL, ML	A-4	0	0-2	80-98	70-95	65-90	50-65	15-35	NP-10
	5-28	Silty clay loam, silty clay, clay	MH, ML	A-7	0	0-2	75-95	65-95	60 92	55 90	40-72	14-37
	28 50	Weathered bedrock			---	---	---	---	---	---	---	---
CUC:												
Corryton	0-9	Silt loam, loam	CL-ML, ML	A-4	0	0	95-100	80-96	75-94	60-90	0-30	NP-7
	9-17	Silty clay loam, clay loam	CL	A-6	0	0	95 100	80-95	75-94	50-85	30-40	11-16
	17-41	Silty clay loam, silty clay, clay	CH, CL	A-6, A-7	0	0	95-100	80 100	75 100	70-99	35-70	14-40
	41-75	Channery silty clay loam, loam, channery silt loam	GC, GM, ML, CL, SC, SM, SC SM	A 4, A 6	0	0	65-100	55-95	50-90	45 85	30-40	2-20
Urban land.												
DcB2:												
Decatur	0-6	Silt loam	CL, CL ML, ML	A 4, A 6		0 3	90 100	90-98	85-98	65 80	0 32	NP-12
	6-67	Clay	MH, ML	A-6, A 7	---	0 3	90 100	90 100	88 98	75-90	37-60	11-28
DcC2:												
Decatur	0-6	Silt loam	CL-ML, CL, ML	A-4, A-6	---	0-3	90-100	90-98	85 98	65 80	0-32	NP-12
	6-67	Clay	MH, ML	A 6, A-7	---	0-3	90-100	90-100	88-98	75 90	37-60	11-28
DcD2:												
Decatur	0-6	Silt loam	CL, ML, CL ML	A-4, A-6	---	0-3	90-100	90-98	85 98	65 80	0-32	NP-12
	6 67	Clay	MH, ML	A 6, A 7	---	0-3	90-100	90 100	88-98	75-90	37-60	11-28
DeB:												
Dewey	0-9	Silt loam, loam	CL, CL-ML	A-4, A-6	0	0	90 100	80-100	75 95	65 80	24-30	5-11
	9-72	Clay, silty clay, silty clay loam	CL	A-6	0	0	90-100	80-100	75 95	70-85	27-40	12-20

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number: 4	Percentage passing sieve number: 10	Percentage passing sieve number: 40	Percentage passing sieve number: 200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
DwC2:												
Dewey-----------	0-6	Silty clay loam, silt loam	CL	A 6	0	0	90-100	80 100	75 95	70 80	25 39	12 20
	6-48	Clay, silty clay	MH, ML	A-6, A-7	0	0-2	85-100	75-100	70-95	65-85	38-68	12-34
	48-60	Clay, silty clay, gravelly clay	MH, ML	A-6, A-7	0	0-5	65-100	60-100	55 95	50-85	38-68	12-34
DwD2:												
Dewey-----------	0-6	Silty clay loam, silt loam	CL	A 6	0	0	90-100	80-100	75 95	70-80	25-39	12-20
	6-48	Clay, silty clay	MH, ML	A-6, A-7	0	0-2	85-100	75-100	70-95	65 85	38-68	12-34
	48-60	Clay, silty clay, gravelly clay	MH, ML	A-6, A-7	0	0-5	65-100	60-100	55-95	50-85	38-68	12-34
DX:												
Dumps, landfills.												
DY:												
Dumps, pulpwood processing waste.												
Ea:												
Emory	0-8	Silt loam	CL, CL ML	A 4, A-6	---	0-2	95-100	90-100	85-100	80-95	25-40	4-15
	8-32	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	---	0-2	95-100	90-100	85 100	80 95	25-40	4-15
	32-60	Silty clay loam, clay, silty clay	CL	A-4, A-6, A-7	---	0-2	90-100	75-100	70 100	65 95	25-45	9-20
Eo:												
Etowah---------	0-30	Loam, silt loam	CL, CL-ML, SC SM, ML	A-4	0	0	80-100	75-100	70 95	45-70	20-30	3-10
	30-65	Silty clay loam, clay loam, clay	CL, MH, ML	A-6, A-7	0	0	80-100	75-100	70 95	65-85	39-60	15-25

Table 14.- Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
EtB:												
Etowah	0 10	Loam, silt loam	CL ML, ML, CL, SC SM, SM, SC	A 4	0	0	80 100	75-100	70 95	45-70	20-30	3-10
	10-70	Silty clay loam, clay loam, clay	CL, CH, MH, ML	A-6, A-7	0	0	80 100	75-100	70-95	65-85	39-60	15-25
EtC:												
Etowah----------	0-10	Loam, silt loam	CL-ML, ML, SC, CL, SC-SM, SM	A-4	0	0	80 100	75-100	70-95	45-70	20-30	3-10
	10-70	Silty clay loam, clay loam, clay	MH, CL, ML, CH	A 6, A-7	0	0	80-100	75-100	70 95	65-85	39 60	15 25
FcB2:												
Fullerton-------	0-4	Clay loam	CL-ML, ML, SM, CL, SC, SC-SM	A 4	0	0-5	85-100	80-100	70 95	43-70	18-30	2-9
	4-60	Gravelly clay, gravelly silty clay	GM, MH, SM, ML	A 2, A-7	--	2-18	60-90	45-80	40 75	30-75	48-78	20-42
FgC2:												
Fullerton-------	0 11	Gravelly silt loam, gravelly loam	CL, CL-ML, SC-SM, GC, GC-GM, SM, SC	A-2, A-4	---	2-15	60 94	45-80	40-75	30-70	18 30	3-10
	11 19	Gravelly silty clay loam, gravelly clay loam, gravelly loam	GC, CL, SC	A-4, A-6, A 2, A-7		2-18	60-90	45-80	40 75	30-70	29-42	8-17
	19 33	Gravelly clay, gravelly silty clay	MH, GM, ML, SM	A-2, A-7	---	2-18	60 90	45-80	40-75	30-75	48 78	20-42
	33 63	Extremely gravelly clay, very gravelly clay	GM, GW-GM	A-2	--	2-18	20-50	15-50	10-45	5-34	48 78	20-42

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
FgD2:												
Fullerton-------	0-11	Gravelly silt loam, gravelly loam	CL, CL-ML, SC, GC, SM, GC-GM, SC SM	A-2, A-4	---	2 15	60 94	45-80	40 75	30-70	18-30	3-10
	11 19	Gravelly silty clay loam, gravelly clay loam, gravelly loam	CL, GC, SC	A-2, A-4, A 7, A-6	---	2-18	60-90	45-80	40-75	30-70	29 42	8-17
	19-33	Gravelly clay, gravelly silty clay	GM, MH, SM, ML	A-2, A-7	---	2-18	60-90	45-80	40-75	30-75	48-78	20-42
	33 63	Extremely gravelly clay, very gravelly clay	GM, GW-GM	A-2	---	2-18	20 50	15 50	10 45	5-34	48 78	20-42
FgE3:												
Fullerton-------	0-11	Gravelly silt loam, gravelly loam	CL-ML, GC, CL, GC-GM, SM, SC, SC-SM	A-2, A-4	---	2-15	60 94	45-80	40 75	30-70	18-30	3-10
	11-19	Gravelly silty clay loam, gravelly clay loam, gravelly loam	CL, GC, SC	A-2, A-7, A-4, A-6	---	2-18	60-90	45 80	40 75	30-70	29-42	8-17
	19-33	Gravelly clay, gravelly silty clay	GM, MH, SM, ML	A-2, A-7	---	2-18	60 90	45-80	40 75	30-75	48-78	20-42
	33-63	Extremely gravelly clay, very gravelly clay	GM, GW GM	A-2	---	2-18	20-50	15-50	10-45	5-34	48-78	20-42

Table 14. Engineering Index Properties Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
FgF2:												
Fullerton ------	0-11	Gravelly silt loam, gravelly loam	CL, CL-ML, SM, GC, GC-GM, SC, SC-SM	A-2, A-4	---	2-15	60-94	45-80	40-75	30-70	18-30	3-10
	11-19	Gravelly silty clay loam, gravelly clay loam, gravelly loam	CL, GC, SC	A-2, A-4, A-7, A-6	---	2-18	60-90	45-80	40-75	30-70	29-42	8-17
	19-33	Gravelly clay, gravelly silty clay	GM, MH, SM, ML	A-2, A-7	---	2-18	60-90	45-80	40-75	30-75	48-78	20-42
	33-63	Extremely gravelly clay, very gravelly clay	GM, GW-GM	A-2	---	2-18	20-50	15-50	10-45	5-34	48-78	20-42
FRC:												
Fullerton-------	0-11	Gravelly silt loam, gravelly loam	CL-ML, GC, CL, GC-GM, SM, SC, SC-SM	A-2, A-4	---	2-15	60-94	45-80	40-75	30-70	18-30	3-10
	11-19	Gravelly silty clay loam, gravelly clay loam, gravelly loam	CL, GC, SC	A-4, A-6, A-2, A-7	---	2-18	60-90	45-80	40-75	30-70	29-42	8-17
	19-33	Gravelly clay, gravelly silty clay	GM, MH, SM, ML	A-2, A-7	---	2-18	60-90	45-80	40-75	30-75	48-78	20-42
	33-63	Extremely gravelly clay, very gravelly clay	GM, GW-GM	A-2	---	2-18	20-50	15-50	10-45	5-34	48-78	20-42
Urban land.												

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
FRD:												
Fullerton-------	0-11	Gravelly silt loam, gravelly loam	CL ML, GC, CL, GC GM, SM, SC, SC-SM	A 2, A 4	---	2-15	60-94	45-80	40-75	30 70	18-30	3-10
	11-19	Gravelly silty clay loam, gravelly clay loam, gravelly loam	CL, GC, SC	A-4, A-6, A-2, A 7	---	2 18	60-90	45 80	40-75	30-70	29-42	8 17
	19 33	Gravelly clay, gravelly silty clay	GM, MH, SM, ML	A-2, A-7	---	2-18	60-90	45-80	40-75	30-75	48-78	20-42
	33 63	Extremely gravelly clay, very gravelly clay	GM, GW-GM	A-2	---	2 18	20-50	15-50	10-45	5-34	48-78	20 42
Urban land.												
Ha:												
Hamblen---------	0-7	Silt loam, loam	CL, CL ML, ML	A 4, A 6		0 2	90 100	80 100	65-95	55-85	22-38	3-14
	7 52	Silt loam, loam, clay loam, silty clay loam	CL-ML, CL, ML	A-4, A 6	---	0-2	80-100	75-100	60-95	55-85	22-40	3 17
	52 60	Gravelly clay, very gravelly clay, gravelly clay loam	CL, GC, SC	A-4, A-6, A-7	0	0-5	55-80	50-75	40-70	36-65	25-50	7-23
HrC:												
Harmiller	0 5	Loam	SC SM, CL, CL ML, ML, SM, SC	A 2 4, A 4	0 1	0 5	85-100	80 100	65-85	30-75	15-30	NP-10
	5-23	Clay loam, loam, gravelly loam	ML, SM	A-4, A-5, A 7-6, A-6	0-1	0 15	70-100	60 100	55-95	40 85	35-50	9-20
	23 30	Weathered bedrock	---	---	---	---	---		---		---	---

Table 14.--Engineering Index Properties Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
KeC.												
Keener----------	0-3	Gravelly sandy loam, cobbly fine sandy loam	ML, CL-ML, SC-SM, SM	A 4	0-1	1-15	96-100	86-98	68-98	40-80	0-25	NP-7
	3 60	Cobbly clay loam, gravelly sandy clay loam, gravelly clay loam	CL, CL ML, ML	A 4	0 5	15 35	95 100	95 100	70 100	55 85	18 30	3-10
Lostcove--------	0-5	Gravelly loam, very gravelly fine sandy loam	SC, GM, SC-SM, SM	A-1, A-2, A-4	0-5	5-30	65-85	55-75	30-60	20-40	20-30	NP-10
	5 50	Very cobbly loam, extremely cobbly loam, cobbly clay loam, cobbly sandy clay loam, very cobbly clay loam	GC, SC, GC-GM, SM, GM	A 2, A-4, A-7-6, A-6	0-5	10-70	23-72	22 60	19-50	15-40	20-50	7-20
	50-76	Very cobbly clay, cobbly clay loam, very cobbly clay loam	GC, SC, GC-GM, SM, GM	A-4, A-2, A-6, A-7-6	0-5	10-70	23-72	22-60	19-50	15-40	20 50	7-20
KeF:												
Keener----------	0-3	Gravelly sandy loam, cobbly fine sandy loam	ML, SC-SM, CL-ML, SM	A-4	0-1	1-15	96-100	86 98	68-98	40 80	0-25	NP-7
	3 60	Cobbly clay loam, gravelly sandy clay loam, gravelly clay loam	CL, CL-ML, ML	A 4	0-5	15-35	95-100	95-100	70-100	55-85	18-30	3-10

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
KeF:												
Lostcove-------	0-5	Gravelly loam, very gravelly fine sandy loam	SC, SC-SM, GM, SM	A-1, A-2, A-4	0-5	5-30	65-85	55-75	30-60	20-40	20-30	NP-10
	5-50	Very cobbly loam, extremely cobbly loam, cobbly clay loam, cobbly sandy clay loam, very cobbly clay loam	GC-GM, GC, GM, SC, SM	A-4, A-6, A-2, A-7-6	0-5	10-70	23-72	22-60	19-50	15-40	20-50	7-20
	50-76	Very cobbly clay, cobbly clay loam, very cobbly clay loam	GC-GM, GM, GC, SM, SC	A-4, A-6, A-2, A-7-6	0-5	10-70	23-72	22-60	19-50	15-40	20-50	7-20
LoD:												
Lostcove--------	0-5	Gravelly loam, very gravelly fine sandy loam	SC, GM, SC-SM, SM	A-1, A-2, A-4	0-5	5-30	65-85	55-75	30-60	20-40	20-30	NP-10
	5-50	Very cobbly loam, extremely cobbly loam, cobbly clay loam, cobbly sandy clay loam, very cobbly clay loam	GC, SC, GC-GM, GM, SM	A-2, A-7-6, A-4, A-6	0-5	10-70	23-72	22-60	19-50	15-40	20-50	7-20
	50-76	Very cobbly clay, cobbly clay loam, very cobbly clay loam	GC-GM, GC, GM, SC, SM	A-4, A-2, A-6, A-7-6	0-5	10-70	23-72	22-60	19-50	15-40	20-50	7-20

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
LoE:												
Lostcove--------	0-5	Gravelly loam, very gravelly fine sandy loam	SC, GM, SC-SM, SM	A-1, A-2, A-4	0-5	5-30	65-85	55-75	30-60	20-40	20-30	NP-10
	5 50	Very cobbly loam, extremely cobbly loam, cobbly clay loam, cobbly sandy clay loam, very cobbly clay loam	GC, SC, GC GM, GM, SM	A 4, A-2, A 6, A 7 6	0 5	10-70	23-72	22-60	19-50	15-40	20-50	7-20
	50 76	Very cobbly clay, cobbly clay loam, very cobbly clay loam	GC GM, GM, SM, GC, SC	A 4, A 6, A 2, A-7-6	0-5	10-70	23-72	22-60	19-50	15-40	20 50	7 20
McD:												
McCamy----------	0 5	Loam, sandy loam	CL, CL-ML, ML	A-4	---	0-5	90-100	85-100	70-95	55-80	0-35	NP 10
	5-24	Clay loam, sandy clay loam, loam	SC-SM, CL-ML, SM, CL, ML, SC	A-4, A 6	---	0-5	90-100	85-100	75-100	40-80	0-35	3-15
	24-31	Weathered bedrock		---	---	---	---					
	31 34	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
MfF:												
Minvale	0 13	Gravelly silt loam, gravelly loam	CL, CL ML, GC, ML, GM	A-4	0	0-5	55-80	50-75	40-70	36-60	20-30	NP 10
	13-28	Gravelly silty clay loam, gravelly silt loam, gravelly loam	CL ML, CL, GC, GC-GM	A-4, A-6	0	0-5	50-75	50-75	40-70	36-65	20 40	5 15
	28 68	Gravelly silty clay loam, gravelly silty clay, gravelly clay, very gravelly clay	CL-ML, SC, MH, CH, SC-SM, SM, CL, GC	A 4, A-6, A 7	0	0-5	55-80	50-75	40-70	36-65	25-50	7-23

Table 14. Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
MfF:												
Fullerton-----	0-11	Gravelly silt loam, gravelly loam	CL-ML, GC, GC-GM, SM, CL, SC, SC-SM	A-2, A-4	---	2-15	60-94	45-80	40-75	30-70	18-30	3-10
	11-19	Gravelly silty clay loam, gravelly silt loam, gravelly loam	CL, GC, SC	A-4, A-2, A-6, A-7	---	2-18	60-90	45-80	40-75	30-70	29-42	8-17
	19-33	Gravelly clay, gravelly silty clay	MH, GM, ML, SM	A-2, A-7	---	2-18	60-90	45-80	40-75	30-75	48-78	20-42
	33-63	Extremely gravelly clay, very gravelly clay	GM, GW-GM	A-2	---	2-18	20-50	15-50	10-45	5-34	48-78	20-42
MnC:												
Minvale---------	0-13	Gravelly silt loam, gravelly loam	CL-ML, GC, GM, CL, ML	A-4	0	0-5	55-80	50-75	40-70	36-60	20-30	NP-10
	13-28	Gravelly silty clay loam, gravelly silt loam, gravelly loam	CL, GC, CL-ML, GC-GM	A-4, A-6	0	0-5	50-75	50-75	40-70	36-65	20-40	5-15
	28-68	Gravelly silty clay loam, gravelly silty clay, gravelly clay, very gravelly clay	CL, CL-ML, GC, CH, MH, SM, SC, SC-SM	A-4, A-7, A-6	0	0-5	55-80	50-75	40-70	36-65	25-50	7-23

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
MnD:												
Minvale	0-13	Gravelly silt loam, gravelly loam	CL-ML, GC, GM, CL, ML	A-4	0	0-5	55-80	50-75	40-70	36-60	20-30	NP-10
	13-28	Gravelly silty clay loam, gravelly silt loam, gravelly loam	CL-ML, CL, GC, GC-GM	A-4, A-6	0	0-5	50-75	50-75	40-70	36-65	20-40	5-15
	28-68	Gravelly silty clay loam, gravelly silty clay, gravelly clay, very gravelly clay	CH, SM, CL, CL-ML, GC, MH, SC, SC-SM	A-6, A-4, A-7	0	0-5	55-80	50-75	40-70	36-65	25-50	7-23
NcC:												
Needmore	0-7	Silt loam, silty clay loam	CL, CL-ML, ML	A-4	0	0	95-100	90-100	85-100	80-90	18-30	3-10
	7-12	Silt loam, silty clay loam	CL	A-6	0	0	95-100	80-95	75-94	50-85	30-40	11-16
	12-31	Silty clay, clay, clay loam	CH, CL	A-7	0	0	95-100	90-100	85-100	80-95	43-65	18-35
	31-35	Channery silty clay, channery clay	CH, GC, CL	A-7	---	10-35	55-70	50-70	45-65	40-60	43-65	18-35
	35-40	Weathered bedrock	---		---	---	---	---	---	---	---	
Corryton	0-9	Silt loam, loam	CL-ML, ML	A-4	0	0	95-100	80-96	75-94	60-90	0-30	NP-7
	9-17	Silty clay loam, clay loam	CL	A-6	0	0	95-100	80-95	75-94	50-85	30-40	11-16
	17-41	Silty clay loam, silty clay, clay	CH, CL	A-6, A-7	0	0	95-100	80-100	75-100	70-99	35-70	14-40
	41-75	Channery silty clay loam, loam, channery silt loam	CL, GC, SM, GM, ML, SC, SC-SM	A-4, A-6	0	0	65-100	55-95	50-90	45-85	30-40	2-20

Table 14. Engineering Index Properties- Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number-				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
Ne:												
Neubert---------	0 6	Loam, sandy loam	CL-ML, ML, CL, SM, SC, SC-SM	A-4		0-5	90-100	85-100	60-85	45-75	20-30	2-10
	6-45	Loam, sandy clay loam, clay loam	SC SM, CL, CL-ML, ML, SM, SC	A-2, A-7 6, A-4, A 6	0	0-2	90-100	85-100	60-95	30 70	25 45	7-18
	45-74	Clay loam, sandy clay loam, loam	SC SM, SM, CL, SC, CL-ML, ML	A 4, A 6	—	0 5	80 100	75-100	65-100	36-80	20-35	2-15
NnC:												
Nonaburg--------	0 2	Silty clay loam, silt loam	CH, CL	A-6, A-7	---	---	90-100	85-95	80-90	75-85	35-65	12-35
	2-10	Clay, silty clay, silty clay loam	CH, CL	A-7	-	--	70-100	65-90	60-85	55-80	40-70	22-40
	10 39	Weathered bedrock	---	---	---		---	---	---	---	---	---
Needmore-------	0 7	Silt loam, silty clay loam	CL, ML, CL-ML	A-4	0	0	95-100	90-100	85-100	80-90	18-30	3-10
	7-12	Silt loam, silty clay loam	CL	A-6	0	0	95-100	80-95	75-94	50-85	30-40	11-16
	12-31	Silty clay, clay, clay loam	CH, CL	A-7	0	0	95 100	90-100	85 100	80 95	43 65	18 35
	31-35	Channery silty clay, channery clay	CH, CL, GC	A-7	---	10-35	55-70	50-70	45-65	40-60	43-65	18-35
	35-40	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
NnD:												
Nonaburg--------	0-2	Silty clay loam, silt loam	CH, CL	A-6, A-7	---	---	90-100	85-95	80-90	75-85	35-65	12-35
	2 10	Clay, silty clay, silty clay loam	CH, CL	A-7	---	---	70-100	65-90	60-85	55-80	40-70	22-40
	10-39	Weathered bedrock	---	---	--	--	--	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
NnD:												
Needmore--------	0-7	Silt loam, silty clay loam	CL, CL-ML, ML	A-4	0	0	95-100	90-100	85-100	80-90	18-30	3-10
	7-12	Silt loam, silty clay loam	CL	A-6	0	0	95-100	80-95	75-94	50-85	30-40	11-16
	12-31	Silty clay, clay, clay loam	CH, CL	A-7	0	0	95-100	90-100	85-100	80-95	43-65	18-35
	31-35	Channery silty clay, channery clay	CH, GC, CL	A-7	---	10-35	55-70	50-70	45-65	40-60	43-65	18-35
	35-40	Weathered bedrock	---	---	---	---	---	---	---	---		---
NoF:												
Nonaburg --------	0-2	Silty clay loam, silt loam	CH, CL	A-6, A-7	---	---	90-100	85-95	80-90	75-85	35-65	12-35
	2-10	Clay, silty clay, silty clay loam	CH, CL	A-7		---	70-100	65-90	60-85	55-80	40-70	22-40
	10-39	Weathered bedrock	---	---	---	---	---			---	---	---
Needmore--------	0-7	Silt loam, silty clay loam	CL-ML, CL, ML	A-4	0	0	95-100	90-100	85-100	80-90	18-30	3-10
	7-12	Silt loam, silty clay loam	CL	A-6	0	0	95-100	80-95	75-94	50-85	30-40	11-16
	12-31	Silty clay, clay, clay loam	CH, CL	A-7	0	0	95-100	90-100	85-100	80-95	43-65	18-35
	31-35	Channery silty clay, channery clay	CH, CL, GC	A-7	---	10-35	55-70	50-70	45-65	40-60	43-65	18-35
	35-40	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
Pe:												
Pettyjon--------	0-7	Silty clay loam, silt loam	ML, CL-ML	A-4	0	0	95-100	95-100	90-100	70-90	0-30	NP-7
	7-61	Loam, silty clay loam, silt loam	ML, CL-ML	A-4	0	0	95-100	95-100	90-100	70-90	0-30	NP-7
PM:												
Pits, Mines, Dumps.												
RhF:												
Red Hills--------	0-4	Sandy loam, loam	CL, CL-ML, ML	A-4	0-5	0-5	80-100	75-100	65-90	50-65	10-30	NP-10
	4-26	Gravelly sandy clay loam, very gravelly loam, gravelly sandy loam	CL-ML, CL	A-4	0-10	0-10	70-100	70-100	60-85	50-65	15-40	5-20
	26-32	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Steekee----------	0-4	Sandy loam, loam	SC, SC-SM, SM, ML, CL-ML, CL	A-4	---	0-5	85-100	80-95	60-85	35-65	15-30	NP-9
	4-10	Gravelly loam, gravelly sandy loam, clay loam, sandy clay loam	GC-GM, GC, SC, SC-SM	A-2, A-1, A-4, A-6	---	0-35	50-90	45-90	35-80	20-50	15-40	4-20
	10-14	Very gravelly loam, gravelly sandy loam, clay loam, sandy clay loam, very gravelly sandy clay loam	GC-GM, GC, SC, SC-SM	A-1, A-6, A-2, A-4	---	0-40	35-85	30-85	25-80	20-50	15-40	4-20
	14-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
Rk:												
Rockdell--------	0-10	Gravelly loam, gravelly silt loam	SC-SM, GM, SM, GC-GM	A-2, A-4	---	0-20	50-75	50 60	40 55	30 49	15 25	NP-7
	10-41	Very gravelly loam, very gravelly clay loam, extremely gravelly loam, gravelly loam	GC, SC, SC-SM	A-2, A-4, A-6	---	0-20	50-75	20-60	20 50	15-40	25-40	7-15
	41-60	Cobbly clay loam, very cobbly clay loam	GM, MH, SM	A 7		35 70	65-85	55-75	45-70	40 60	70-80	30-40
RoF:												
Rock outcrop.												
Bradyville------	0-6	Gravelly silt loam	GC GM, CL ML, GM, SM, ML, SC SM	A-1 b, A-4, A 2	-	5-25	60-94	45-80	20 67	20-62	15-30	NP 7
	6-44	Silty clay, clay	CH	A-7	0	0 5	80 100	75 100	65 90	60-85	52 70	26-40
	44-48	Unweathered bedrock	---	---	---	- -		---	---			
ShB:												
Shady	0 8	Loam, fine sandy loam	ML, CL-ML, SM, SC-SM	A-2, A-4		0-5	80-100	75 100	60-95	30-75	15-30	NP-7
	8-60	Clay loam, sandy clay loam, loam	CL-ML, CL, ML, SC-SM, SC, SM	A-4, A-6		0 5	80 100	75-100	65-100	36 80	20-35	2 15
ShC:												
Shady ---- ----	0-8	Loam, fine sandy loam	CL-ML, SC-SM, ML, SM	A-2, A-4	---	0-5	80-100	75 100	60-95	30-75	15-30	NP-7
	8-60	Clay loam, sandy clay loam, loam	CL, CL ML, SC SM, ML, SC, SM	A 4, A-6	---	0-5	80-100	75 100	65-100	36-80	20-35	2-15

Table 14.--Engineering Index Properties Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number -				Liquid limit	Plas-ticity index
			Unified	AASHTO	>10 inches	3 10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
St:												
Steadman--------	0-7	Silty clay loam, silt loam	CL-ML, CL, ML	A-4, A 6	0	0	100	95 100	80-100	55-90	20-35	2-15
	7-36	Silty clay loam, silt loam, very fine sandy loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90 100	70 95	25-40	4 18
	36-64	Silt loam, silty clay loam, loam	CL, CL-ML	A-4, A-6	0	0	100	95 100	90-100	70-95	25 40	4-18
SuC:												
Sunlight--- --	0-3	Channery sandy loam	GC, SM, GC GM, GM, ML	A-4	0	0-5	50 85	50-80	35-70	35-60	0-40	NP 10
	3-13	Channery loam, very channery clay loam, very channery silt loam	GC, GC-GM, SC	A-2, A-4, A-1-b, A-6	0	0-10	40 65	35-60	35 50	20-40	20 40	4 15
	13-20	Weathered bedrock	--	--	-	---	-	---		---	--	---
Apison ---	0-3	Loam, silt loam	ML, CL-ML, CL	A-4	0	0	85 100	75-100	65 90	55-85	18 30	3-10
	3-22	Clay loam, channery clay loam, loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	85-100	75-100	70-95	60-90	20-40	4-18
	22-60	Weathered bedrock	---	-		- -	---		---		---	- -
SuD:												
Sunlight --	0-3	Channery sandy loam	GC-GM, GC, GM, SM, ML	A-4	0	0-5	50 85	50 80	35-70	35-60	0-40	NP 10
	3-13	Channery loam, very channery clay loam, very channery silt loam	GC, GC GM, SC	A-2, A-4, A-1-b, A-6	0	0 10	40-65	35 60	35 50	20 40	20-40	4-15
	13 20	Weathered bedrock	---	---	-	---	---		---	--	--	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
SuD:												
Apison	0-3	Loam, silt loam	CL, ML, CL-ML	A-4	0	0	85-100	75-100	65-90	55-85	18-30	3-10
	3-22	Clay loam, channery clay loam, loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	85-100	75 100	70-95	60-90	20 40	4-18
	22-60	Weathered bedrock	---	---	---	---	---	---	---	---		---
TaB:												
Tasso	0-9	Loam, silt loam	CL-ML, CL, ML	A-4	---	0-5	90-100	80-95	70-85	60-75	20 30	3-9
	9-30	Clay loam, silt loam, loam, silty clay loam	CL	A-4, A-6	---	0-5	90-100	80-95	75-90	65-80	27-36	9-15
	30 42	Silty clay loam, clay loam, gravelly silty clay loam, gravelly clay	CL	A 4, A 6		0 5	70 100	65 95	60 90	50 85	27 36	9 15
	42 62	Gravelly clay, clay, clay loam, silty clay loam	CH, CL, ML, MH	A-6, A-7	---	0-15	70-100	65 95	60-90	50 85	35 55	14-25
TaC:												
Tasso	0-9	Loam, silt loam	CL, CL ML, ML	A-4	---	0-5	90-100	80-95	70-85	60-75	20 30	3-9
	9-30	Clay loam, silt loam, loam, silty clay loam	CL	A-4, A 6		0-5	90-100	80-95	75-90	65-80	27-36	9-15
	30-42	Silty clay loam, clay loam, gravelly silty clay loam, gravelly clay	CL	A-4, A 6		0-5	70-100	65-95	60-90	50-85	27 36	9-15
	42-62	Gravelly clay, clay, clay loam, silty clay loam	CL, MH, CH, ML	A-6, A 7	---	0-15	70-100	65 95	60-90	50-85	35-55	14-25

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number-				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
TeC:												
Tellico	0 4	Loam, sandy loam	CL, CL-ML, ML	A-4, A 6	0	0	80-100	75-100	65-90	50-65	20 40	3-15
	4-70	Sandy clay loam, clay loam, clay, sandy clay	CH, CL	A-6, A-7	0	0	80-100	75-100	70-95	60-75	35 55	15-27
TeE3:												
Tellico--	0-4	Loam, sandy loam	CL-ML, CL, ML	A-4, A-6	0	0	80-100	75 100	65-90	50-65	20-40	3-15
	4-70	Sandy clay loam, clay loam, clay, sandy clay	CH, CL	A-6, A-7	0	0	80-100	75 100	70-95	60-75	35-55	15-27
ThF:												
Tellico----------	0-4	Loam, sandy loam	CL, CL-ML, ML	A-4, A-6	0	0	80 100	75 100	65-90	50-65	20-40	3-15
	4 70	Sandy clay loam, clay loam, clay, sandy clay	CH, CL	A-6, A-7	0	0	80-100	75 100	70-95	60-75	35-55	15-27
Red Hills--------	0-4	Sandy loam, loam	CL, CL-ML, ML	A-4	0-5	0-5	80-100	75-100	65-90	50 65	10 30	NP-10
	4-26	Gravelly sandy clay loam, very gravelly loam, gravelly sandy loam	CL-ML, CL	A 4	0 10	0-10	70-100	70-100	60-85	50-65	15-40	5-20
	26-32	Weathered bedrock	---	---		---	---	---	---	---	---	---
TkD:												
Tellico--------	0-4	Loam, sandy loam	CL, ML, CL-ML	A-4, A-6	0	0	80-100	75 100	65 90	50 65	20 40	3-15
	4 70	Sandy clay loam, clay loam, clay, sandy clay	CH, CL	A 6, A 7	0	0	80-100	75-100	70-95	60-75	35-55	15-27

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	Percentage passing sieve number--: 10	Percentage passing sieve number--: 40	Percentage passing sieve number--: 200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
TkD:												
Steekee------	0 4	Sandy loam, loam	SC, SC-SM, ML, SM, CL, CL ML	A-4		0-5	85-100	80-95	60-85	35-65	15-30	NP-9
	4-10	Gravelly loam, sandy loam, clay loam, sandy clay loam	GC-GM, GC, SC, SC-SM	A-1, A-6, A-2, A-4	---	0-35	50-90	45-90	35-80	20-50	15-40	4-20
	10-14	Very gravelly loam, sandy loam, clay loam, sandy clay loam, very gravelly sandy clay loam	GC, SC-SM, GC GM, SC	A-1, A-6, A-2, A 4	---	0 35	50 90	45-90	35-80	20-50	15-40	4-20
	14-60	Weathered bedrock	---	---	--	---	---	---			---	-
To:												
Toccoa---------	0 10	Loam, sandy loam	ML	A 4	0	0	98 100	95-100	75 90	55-80	0-30	NP-4
	10 60	Sandy loam, loam	ML, SC SM, SM	A-2, A 4	0	0	95-100	90-100	60-100	30 55	0-30	NP 4
TwB2:												
Townley--- ---	0-5	Silt loam, loam	CL, ML, CL ML	A 4	0	0 2	80-98	70-95	65-90	50-65	15-35	NP-10
	5 28	Silty clay loam, silty clay, clay loam, clay	MH, ML	A-7	0	0-2	75 95	65-95	60-92	55 90	40-72	14 37
	28-50	Weathered bedrock	---	--	-	---		---	---	-	---	-
Coile----- --	0 3	Silt loam, loam	CL ML, CL, ML	A-6, A 4		0-5	85 100	80-100	40 70	40 60	5-30	NP 15
	3-10	Channery clay, channery loam, very channery silt loam	SC, GC, CL, GC GM	A-6, A-2		0 20	50-75	45-70	35 60	25-60	15-40	20-40
	10-18	Very channery clay loam, channery clay, very channery loam	GC, SC, CL	A-6, A 2	--	0-20	35-75	30-70	30-65	25-60	15-40	20-40
	18-24	Weathered bedrock			---	---	-	---	---	--	---	-

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
UDC:												
Udorthents.												
Urban land.												
UnE:												
Unicoi	0-5	Gravelly sandy loam, gravelly loam	GC-GM, GM, SM, SC-SM	A-1-b, A-2	0-5	15-50	60-75	40-65	30-50	20-35	0-25	NP-6
	5-15	Very cobbly loam, very gravelly sandy loam, very stony loam	GC-GM, GM, SM, SC-SM	A-1-b, A-2	0	20-50	60-75	40-65	30-50	20-35	0-25	NP-6
	15-20	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
UoG:												
Unicoi----------	0-5	Gravelly sandy loam, gravelly loam	GM, GC-GM, SC-SM, SM	A-1-b, A-2	0-5	15-50	60-75	40-65	30-50	20-35	0-25	NP-6
	5-15	Very cobbly loam, very gravelly sandy loam, very stony loam	GC-GM, GM, SM, SC-SM	A-1-b, A-2	0	20-50	60-75	40-65	30-50	20-35	0-25	NP-6
	15-20	Unweathered bedrock	---	---	---	---		---	---	---	---	
Rock outcrop.												
URC:												
Urban land.												
UU:												
Urban land.												
Udorthents.												
W:												
Water.												

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
WaB2:												
Waynesboro------	0-7	Clay loam, loam	CL, SC-SM, CL-ML, ML, SM, SC	A-4	0	0-5	85-100	80-100	70-95	43-70	18-30	2-9
	7-79	Clay loam, clay	MH, ML	A-4, A-6, A-7	0	0-5	90-100	80-100	70-98	55-75	35-68	9-32
WaC2:												
Waynesboro------	0-7	Clay loam, loam	CL-ML, ML, SC, SC-SM, CL, SM	A-4	0	0-5	85-100	80-100	70-95	43-70	18-30	2-9
	7-79	Clay loam, clay	MH, ML	A-6, A-4, A-7	0	0-5	90-100	80-100	70-98	55-75	35-68	9-32
WbB2:												
Waynesboro------	0-8	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0-5	95-100	95-100	80-98	70-90	22-35	5-15
	8-60	Clay loam, clay	MH, ML	A-4, A-6, A-7	0	0-5	90-100	80-100	70-98	55-75	35-68	9-32
WbC2:												
Waynesboro------	0-8	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0-5	95-100	95-100	80-98	70-90	22-35	5-15
	8-60	Clay loam, clay	MH, ML	A-4, A-6, A-7	0	0-5	90-100	80-100	70-98	55-75	35-68	9-32
WNC:												
Waynesboro------	0-8	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0-5	95-100	95-100	80-98	70-90	22-35	5-15
	8-60	Clay loam, clay	MH, ML	A-4, A-7, A-6	0	0-5	90-100	80-100	70-98	55-75	35-68	9-32
Urban land.												
WoB:												
Wolftever-------	0-8	Silt loam, silty clay loam	CL, CL-ML, ML	A-4, A-6	0	0	100	95-100	90-100	80-95	25-35	3-12
	8-16	Silty clay loam, silt loam	CL, ML	A-4, A-6	0	0	100	95-100	90-100	80-95	30-40	7-15
	16-72	Silty clay, silty clay loam, clay	MH, ML	A-7	0	0	100	95-100	90-100	75-95	41-55	11-20

Table 14. Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
WoC:												
Wolftever-------	0-8	Silt loam, silty clay loam	CL, CL-ML, ML	A-4, A-6	0	0	100	95-100	90-100	80-95	25-35	3-12
	8-16	Silty clay loam, silt loam	CL, ML	A-4, A-6	0	0	100	95-100	90-100	80-95	30-40	7-15
	16-72	Silty clay, silty clay loam, clay	MH, ML	A-7	0	0	100	95-100	90-100	75-95	41-55	11-20

Table 15.--Physical and Chemical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Soil reaction	Clay	Moist bulk density	Permea- bility (K_{sat})	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T
	In	pH	Pct	g/cc	In/hr	In/in	Pct	Pct			
AaB2:											
Alcoa-------------------	0-3	4.5-5.5	12-27	1.30-1.45	0.60-2.00	0.15-0.20	0.0-2.9	0.5-2.0	.28	.28	5
	3-62	4.5-5.5	30-50	1.35-1.50	0.60-2.00	0.12-0.15	3.0-5.9	0.0-0.5	.24	.24	
AaC2:											
Alcoa	0-3	4.5-5.5	12-27	1.30-1.45	0.60-2.00	0.15-0.20	0.0-2.9	0.5-2.0	.28	.28	5
	3-62	4.5-5.5	30-50	1.35-1.50	0.60-2.00	0.12-0.15	3.0-5.9	0.0-0.5	.24	.24	
AaD2:											
Alcoa-------------------	0-3	4.5-5.5	12-27	1.30-1.45	0.60-2.00	0.15-0.20	0.0-2.9	0.5-2.0	.28	.28	5
	3-62	4.5-5.5	30-50	1.35-1.50	0.60-2.00	0.12-0.15	3.0-5.9	0.0-0.5	.24	.24	
AcF:											
Apison------------------	0-3	4.5-5.5	12-27	1.30-1.45	0.60-2.00	0.15-0.20	0.0-2.9	1.0-3.0	.37	.37	3
	3-22	4.5-5.5	20-35	1.35-1.50	0.60-2.00	0.13-0.18	0.0-2.9	0.0-0.5	.37	.37	
	22-60	---	---	---	0.00-0.20	---	---	---	---	---	
Coile-------------------	0-3	4.5-6.0	7-30	1.20-1.40	0.60-2.00	0.33-0.46	0.0-2.9	0.5-2.0	.24	.32	2
	3-10	4.5-6.0	15-50	1.25-1.45	0.60-2.00	0.20-0.30	0.0-2.9	0.1-0.5	.20	.28	
	10-18	4.5-6.0	15-50	1.20-1.50	0.20-2.00	0.15-0.30	0.0-2.9	0.1-0.5	.20	.28	
	18-24	---	---	---	0.00-0.20	---	---		---	---	
AsC:											
Apison------------------	0-3	4.5-5.5	12-27	1.30-1.45	0.60-2.00	0.15-0.20	0.0-2.9	1.0-3.0	.37	.37	3
	3-22	4.5-5.5	20-35	1.35-1.50	0.60-2.00	0.13-0.18	0.0-2.9	0.0-0.5	.37	.37	
	22-60	---	---	---	0.00-0.20	---	---	---	---	---	
Sunlight----------------	0-3	4.5-5.5	10-27	1.40-1.60	0.60-2.00	0.08-0.14	0.0-2.9	1.0-2.0	.24	.28	2
	3-13	4.5-5.5	18-35	1.50-1.70	0.60-2.00	0.10-0.18	0.0-2.9	0.0-0.5	.17	.28	
	13-20				0.06-0.20	---	---	---	---	---	
AsF:											
Apison------------------	0-3	4.5-5.5	12-27	1.30-1.45	0.60-2.00	0.15-0.20	0.0-2.9	1.0-3.0	.37	.37	3
	3-22	4.5-5.5	20-35	1.35-1.50	0.60-2.00	0.13-0.18	0.0-2.9	0.0-0.5	.37	.37	
	22-60	---	---	---	0.00-0.20	---	---	---	---		
Sunlight----------------	0-3	4.5-5.5	10-27	1.40-1.60	0.60-2.00	0.08-0.14	0.0-2.9	1.0-2.0	.24	.28	2
	3-13	4.5-5.5	18-35	1.50-1.70	0.60-2.00	0.10-0.18	0.0-2.9	0.0-0.5	.17	.28	
	13-20				0.06-0.20	---	---	---	---	---	
At:											
Atkins------------------	0-6	4.5-5.5	12-27	1.20-1.40	0.60-2.00	0.14-0.22	0.0-2.9	2.0-4.0	.32	.32	5
	6-42	4.0-5.5	18-35	1.20-1.50	0.06-2.00	0.14-0.18	0.0-2.9	0.5-2.0	.32	.32	
	42-60	4.0-5.5	3-18	1.20-1.60	2.00-6.00	0.05-0.09	0.0-2.9	0.1-1.0	.10	.24	
Arkaqua-----------------	0-7	4.5-5.5	10-27	1.20-1.50	0.60-2.00	0.12-0.20	0.0-2.9	2.0-4.0	.32	.32	5
	7-14	4.0-5.5	15-35	1.20-1.55	0.60-2.00	0.12-0.20	0.0-2.9	0.5-2.0	.28	.28	
	14-33	4.0-5.5	10-27	1.30-1.60	0.60-2.00	0.12-0.20	0.0-2.9	0.5-2.0	.28	.28	
	33-60	4.0-5.5	5-18	1.20-1.60	2.00-6.00	0.09-0.13	0.0-2.9	0.1-1.0	.15	.24	
BeB:											
Bellamy-----------------	0-9	4.5-5.5	12-25	1.35-1.50	0.60-2.00	0.16-0.22	0.0-2.9	1.0-2.0	.37	.37	5
	9-17	4.5-5.5	18-32	1.40-1.55	0.60-2.00	0.14-0.18	0.0-2.9	0.5-1.0	.32	.32	
	17-25	4.5-5.5	18-32	1.40-1.55	0.60-2.00	0.14-0.18	0.0-2.9	0.5-1.0	.32	.32	
	25-58	4.5-5.5	18-32	1.45-1.60	0.20-0.60	0.14-0.18	0.0-2.9	0.0-0.5	.32	.32	
	58-67	4.5-5.5	20-50	1.40-1.55	0.60-2.00	0.14-0.18	0.0-2.9	0.0-0.5	.32	.32	
Bm:											
Bloomingdale------------	0-5	5.6-8.4	20-35	1.10-1.30	0.60-2.00	0.17-0.22	0.0-2.9	1.0-3.0	.37	.37	5
	5-60	5.6-8.4	35-60	1.30-1.50	0.60-2.00	0.17-0.22	3.0-5.9	0.1-1.0	.37	.37	

Table 15.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Clay	Moist bulk density	Permea- bility (K_{sat})	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors		
									Kw	Kf	T
	In	pH	Pct	g/cc	In/hr	In/in	Pct	Pct			
BoC2:											
Bodine	0-6	3.6-5.5	8-20	1.35-1.55	2.00-6.00	0.07-0.12	0.0-2.9	1.0-2.0	.20	.32	5
	6-15	3.6-5.5	20-35	1.40-1.60	2.00-6.00	0.05-0.10	0.0-2.9	0.0-0.5	.15	.28	
	15-62	3.6-5.5	23-50	1.40-1.60	2.00-6.00	0.05-0.10	0.0-2.9	0.0-0.5	.15	.28	
BoD2:											
Bodine	0-6	3.6-5.5	8-20	1.35-1.55	2.00-6.00	0.07-0.12	0.0-2.9	1.0-2.0	.20	.32	5
	6-15	3.6-5.5	20-35	1.40-1.60	2.00-6.00	0.05-0.10	0.0-2.9	0.0-0.5	.15	.28	
	15-62	3.6-5.5	23-50	1.40-1.60	2.00-6.00	0.05-0.10	0.0-2.9	0.0-0.5	.15	.28	
BoF2:											
Bodine	0-6	3.6-5.5	8-20	1.35-1.55	2.00-6.00	0.07-0.12	0.0-2.9	1.0-2.0	.20	.32	5
	6-15	3.6-5.5	20-35	1.40-1.60	2.00-6.00	0.05-0.10	0.0-2.9	0.0-0.5	.15	.28	
	15-62	3.6-5.5	23-50	1.40-1.60	2.00-6.00	0.05-0.10	0.0-2.9	0.0-0.5	.15	.28	
BrE:											
Bradyville	0-6	5.1-5.5	8-20	1.35-1.55	2.00-6.00	0.07-0.12	0.0-2.9	0.5-2.0	.20	.32	3
	6-44	5.1-7.3	40-60	1.30-1.50	0.20-0.60	0.10-0.15	3.0-5.9	0.0-0.5	.28	.28	
	44-48	---	---	---	0.00-0.06	---	---	---	---	---	
Rock outcrop.											
BrF:											
Bradyville	0-6	5.1-5.5	8-20	1.35-1.55	2.00-6.00	0.07-0.12	0.0-2.9	0.5-2.0	.20	.32	3
	6-44	5.1-7.3	40-60	1.30-1.50	0.20-0.60	0.10-0.15	3.0-5.9	0.0-0.5	.28	.28	
	44-48	---	---	---	0.00-0.06	---	---	---	---	---	
Rock outcrop.											
CaF:											
Cataska	0-6	4.5-5.5	12-22	1.30-1.40	2.00-20.00	0.10-0.14	0.0-2.9	1.0-3.0	.15	.28	2
	6-11	4.5-5.5	12-22	1.30-1.45	2.00-6.00	0.04-0.09	0.0-2.9	0.1-1.0	.15	.28	
	11-48	---	---	---	0.00-0.20	---	---	---	---	---	
CaG:											
Cataska	0-6	4.5-5.5	12-22	1.30-1.40	2.00-20.00	0.10-0.14	0.0-2.9	1.0-3.0	.15	.28	2
	6-11	4.5-5.5	12-22	1.30-1.45	2.00-6.00	0.04-0.09	0.0-2.9	0.1-1.0	.15	.28	
	11-48	---	---	---	0.00-0.20	---	---	---	---	---	
CgC:											
Coghill	0-7	4.5-6.0	12-27	1.20-1.40	2.00-6.00	0.10-0.16	0.0-2.9	0.5-2.0	.28	.28	5
	7-29	4.5-6.0	30-60	1.25-1.50	0.60-2.00	0.09-0.15	3.0-5.9	0.1-1.0	.28	.28	
	29-38	4.5-6.0	20-60	1.25-1.50	0.60-2.00	0.09-0.15	3.0-5.9	0.1-0.5	.28	.28	
	38-78	4.5-6.0	5-25	1.20-1.40	0.60-6.00	0.08-0.13	0.0-2.9	0.0-0.5	.24	.24	
Apison	0-3	4.5-5.5	12-27	1.30-1.45	0.60-2.00	0.15-0.20	0.0-2.9	1.0-3.0	.37	.37	3
	3-22	4.5-5.5	20-35	1.35-1.50	0.60-2.00	0.13-0.18	0.0-2.9	0.0-0.5	.37	.37	
	22-60	---	---	---	0.00-0.20	---	---	---			
CgD:											
Coghill	0-7	4.5-6.0	12-27	1.20-1.40	2.00-6.00	0.10-0.16	0.0-2.9	0.5-2.0	.28	.28	5
	7-29	4.5-6.0	30-60	1.25-1.50	0.60-2.00	0.09-0.15	3.0-5.9	0.1-1.0	.28	.28	
	29-38	4.5-6.0	20-60	1.25-1.50	0.60-2.00	0.09-0.15	3.0-5.9	0.1-0.5	.28	.28	
	38-78	4.5-6.0	5-25	1.20-1.40	0.60-6.00	0.08-0.13	0.0-2.9	0.0-0.5	.24	.24	
Apison	0-3	4.5-5.5	12-27	1.30-1.45	0.60-2.00	0.15-0.20	0.0-2.9	1.0-3.0	.37	.37	3
	3-22	4.5-5.5	20-35	1.35-1.50	0.60-2.00	0.13-0.18	0.0-2.9	0.0-0.5	.37	.37	
	22-60	---	---	---	0.00-0.20	---	---	---	---	---	
CnC2:											
Coile	0-3	4.5-6.0	7-30	1.20-1.40	0.60-2.00	0.33-0.46	0.0-2.9	0.5-2.0	.24	.32	2
	3-10	4.5-6.0	15-50	1.25-1.45	0.60-2.00	0.20-0.30	0.0-2.9	0.1-0.5	.20	.28	
	10-18	4.5-6.0	15-50	1.20-1.50	0.20-2.00	0.15-0.30	0.0-2.9	0.1-0.5	.20	.28	
	18-24	---	---	---	0.00-0.20	---	---	---	---	---	

Table 15.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Clay	Moist bulk density	Permea-bility (K_{sat})	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T
	In	pH	Pct	g/cc	In/hr	In/in	Pct	Pct			
CnD2:											
Coile-------------------	0-3	4.5-6.0	7-30	1.20-1 40	0.60-2.00	0.33-0.46	0.0-2.9	0.5 2.0	.24	.32	2
	3-10	4.5-6.0	15-50	1.25-1.45	0.60-2.00	0.20-0.30	0.0-2.9	0.1-0.5	.20	.28	
	10-18	4.5-6.0	15-50	1.20-1.50	0.20-2.00	0.15-0.30	0 0-2.9	0.1-0.5	.20	.28	
	18 24		---	---	0.00-0.20	---	---	---	---	- -	
CnE3:											
Coile------ ------------	0-3	4.5-6.0	7 30	1.20 1.40	0.60-2.00	0.33-0.46	0.0-2.9	0.5-2.0	.24	.32	2
	3-10	4.5-6.0	15-50	1.25 1.45	0.60-2.00	0.20-0.30	0.0-2.9	0.1-0.5	.20	.28	
	10-18	4.5-6.0	15-50	1.20-1.50	0.20 2.00	0.15-0.30	0.0-2.9	0.1-0.5	.20	.28	
	18-24	---	---	---	0.00-0.20		---	---	---	---	
CoC2:											
Collegedale-------------	0-6	4.5-5.5	18-27	1.30-1.50	0.60-2.00	0.18-0.22	0.0-2.9	1.0 2.0	.37	.37	5
	6-65	4.5-5.5	40-60	1.45-1.60	0.20-0.60	0.12-0.16	3.0-5.9	0.0 0.5	.24	.24	
CrB:											
Corryton----------------	0-9	4.5-6.0	8-25	1.30-1.50	0.60-2.00	0.15-0.24	0.0-2.9	0.5-2.0	.32	.32	5
	9 17	4.5 6.0	27-40	1.35-1.55	0.60-2.00	0.16-0.24	0.0-2.9	0.5-1.0	.32	.32	
	17 41	4.5 6.0	27-55	1.35-1.55	0.20-0.60	0.12-0.22	3.0-5.9	0.0-0.5	.32	.32	
	41-75	4.5-6.0	18-40	1.35 1.60	0.60-2.00	0.12-0.20	0.0-2.9	0.0-0.5	.28	.32	
Needmore-- - ----------	0-7	5.1-6.5	18-35	1.30-1.45	0.60-2.00	0.18-0.22	0.0 2.9	0.5-2.0	.37	.37	3
	7-12	5.1-6.5	20-40	1.35-1.55	0.60-2.00	0.16-0.24	0.0-2.9	0.5 1.0	.32	.32	
	12-31	5.1-6.5	35-55	1.45 1.60	0.20-0.60	0.14-0.17	3.0-5.9	0.0-0.5	.24	.24	
	31-35	5.6-6.5	40-55	1.45-1.60	0.20-0.60	0.05-0.10	3.0-5.9	0.0-0.5	.24	.32	
	35-40	---	---	---	0.00-0.20	---	---	---	---	--	
CtB2:											
Corryton	0-9	4.5-6.0	8-25	1.30-1.50	0.60-2.00	0.15-0.24	0.0-2 9	0.5-2.0	.32	.32	5
	9 17	4.5-6.0	27-40	1.35-1.55	0.60-2.00	0.16-0.24	0.0-2.9	0.5-1.0	.32	.32	
	17 41	4.5 6.0	27 55	1.35-1.55	0.20-0.60	0.12-0.22	3.0-5.9	0.0-0.5	32	.32	
	41-75	4.5-6.0	18 40	1.35-1.60	0.60-2.00	0.12-0.20	0.0-2.9	0.0-0.5	28	.32	
Townley--- --------	0-5	4.5-5.5	10-27	1.30-1.60	0.60 2.00	0.12-0.14	0.0-2.9	0.5-2.0	.37	.37	3
	5-28	4.5-5.5	30-60	1.30-1.60	0.06-0.20	0.12 0.18	3.0-5.9	0.0 0.5	.28	.32	
	28-50	---	---	---	0.00-0.20	---		---	---	---	
CtC2:											
Corryton----------------	0-9	4.5-6.0	8-25	1.30-1.50	0.60-2.00	0.15-0.24	0.0-2.9	0.5-2.0	.32	.32	5
	9-17	4.5-6.0	27-40	1.35-1.55	0.60-2.00	0.16-0.24	0.0-2.9	0.5-1.0	.32	.32	
	17 41	4.5 6.0	27-55	1.35-1.55	0.20-0.60	0.12-0.22	3.0-5.9	0.0-0.5	.32	.32	
	41-75	4.5-6.0	18 40	1.35 1.60	0.60-2.00	0.12-0.20	0.0-2.9	0.0-0.5	28	.32	
Townley-----------------	0-5	4 5-5.5	10-27	1.30-1.60	0.60-2.00	0.12 0.14	0.0-2.9	0.5-2.0	.37	.37	3
	5-28	4 5-5.5	30-60	1.30-1.60	0.06-0.20	0.12-0.18	3.0 5.9	0.0-0.5	.28	.32	
	28-50	---	---	---	0.00-0.20	---	---		---	---	
CUC:											
Corryton----------------	0-9	4.5-6.0	8-25	1.30-1.50	0.60-2.00	0.15-0.24	0.0-2 9	0.5-2.0	.32	.32	5
	9-17	4.5-6.0	27-40	1.35 1.55	0.60-2.00	0.16-0.24	0.0-2.9	0.5-1.0	.32	.32	
	17 41	4.5 6.0	27-55	1.35-1.55	0.20-0.60	0.12-0.22	3.0-5.9	0.0-0.5	.32	.32	
	41-75	4.5-6.0	18 40	1.35 1.60	0.60-2.00	0.12-0.20	0.0-2.9	0.0-0.5	.28	.32	
Urban land.											
DcB2:											
Decatur-----------------	0-6	4.5-6.0	15-27	1.25-1.55	0.60-2.00	0.18-0.20	0.0-2.9	0.5-2.0	.32	.32	5
	6 67	4.5-6.0	40-60	1.20-1.50	0.60-2.00	0.12-0.16	3.0-5.9	0.0-0.5	.24	.24	
DcC2:											
Decatur---- ----------	0-6	4.5-6.0	15-27	1.25-1.55	0.60 2.00	0.18-0.20	0.0-2.9	0.5-2.0	.32	.32	5
	6-67	4.5-6.0	40-60	1.20-1.50	0.60-2.00	0.12 0.16	3.0-5.9	0.0-0.5	.24	.24	

Table 15.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors Kw	Kf	T
	In	pH	Pct	g/cc	In/hr	In/in	Pct	Pct			
DcD2:											
Decatur	0-6	4.5-6.0	15-27	1.25-1.55	0.60-2.00	0.18-0.20	0.0-2.9	0.5-2.0	.32	.32	5
	6-67	4.5-6.0	40-60	1.20-1.50	0.60-2.00	0.12-0.16	3.0-5.9	0.0-0.5	.24	.24	
DeB:											
Dewey	0-9	4.5-6.0	17-27	1.35-1.50	0.60-2.00	0.18-0.20	0.0-2.9	1.0-3.0	.32	.32	5
	9-72	4.5-6.0	35-50	1.45-1.55	0.60-2.00	0.12-0.18	3.0-5.9	0.0-0.5	.24	.24	
DwC2:											
Dewey	0-6	4.5-6.0	28-45	1.40-1.50	0.60-2.00	0.14-0.19	0.0-2.9	0.5-1.0	.32	.32	5
	6-48	4.5-6.0	45-60	1.45-1.55	0.60-2.00	0.12-0.17	3.0-5.9	0.0-0.5	.24	.24	
	48-60	4.5-6.0	45-60	1.45-1.55	0.60-2.00	0.08-0.17	3.0-5.9	0.0-0.5	.24	.24	
DwD2:											
Dewey	0-6	4.5-6.0	28-45	1.40-1.50	0.60-2.00	0.14-0.19	0.0-2.9	0.5-1.0	.32	.32	5
	6-48	4.5-6.0	45-60	1.45-1.55	0.60-2.00	0.12-0.17	3.0-5.9	0.0-0.5	.24	.24	
	48-60	4.5-6.0	45-60	1.45-1.55	0.60-2.00	0.08-0.17	3.0-5.9	0.0-0.5	.24	.24	
DX:											
Dumps, landfills.											
DY:											
Dumps, pulpwood processing waste.											
Ea:											
Emory	0-8	5.1-6.0	18-27	1.20-1.40	0.60-2.00	0.17-0.21	0.0-2.9	1.0-4.0	.37	.37	5
	8-32	5.1-6.0	20-35	1.25-1.45	0.60-2.00	0.17-0.21	0.0-2.9	0.5-2.0	.37	.37	
	32-60	5.1-6.0	32-45	1.35-1.55	0.60-2.00	0.16-0.20	0.0-2.9	0.0-0.5	.37	.37	
Eo:											
Etowah	0-30	4.5-6.0	15-27	1.30-1.45	0.60-2.00	0.15-0.20	0.0-2.9	0.5-3.0	.32	.32	5
	30-65	4.5-6.0	32-45	1.40-1.55	0.60-2.00	0.16-0.20	0.0-2.9	0.0-0.5	.32	.32	
EtB:											
Etowah	0-10	4.5-6.0	15-27	1.30-1.45	0.60-2.00	0.15-0.20	0.0-2.9	0.5-3.0	.32	.32	5
	10-70	4.5-6.0	32-45	1.40-1.55	0.60-2.00	0.16-0.20	0.0-2.9	0.0-0.5	.32	.32	
EtC:											
Etowah	0-10	4.5-6.0	15-27	1.30-1.45	0.60-2.00	0.15-0.20	0.0-2.9	0.5-3.0	.32	.32	5
	10-70	4.5-6.0	32-45	1.40-1.55	0.60-2.00	0.16-0.20	0.0-2.9	0.0-0.5	.32	.32	
FcB2:											
Fullerton	0-4	4.5-5.5	28-35	1.40-1.55	0.60-2.00	0.15-0.21	0.0-2.9	0.5-2.0	.24	.28	5
	4-60	4.5-5.5	40-70	1.45-1.55	0.60-2.00	0.10-0.14	3.0-5.9	0.0-0.5	.20	.24	
FgC2:											
Fullerton	0-11	4.5-5.5	15-27	1.45-1.55	0.60-2.00	0.10-0.16	0.0-2.9	0.5-2.0	.20	.32	5
	11-19	4.5-5.5	20-35	1.45-1.55	0.60-2.00	0.10-0.15	0.0-2.9	0.0-0.5	.20	.28	
	19-33	4.5-5.5	40-70	1.45-1.55	0.60-2.00	0.10-0.14	3.0-5.9	0.0-0.5	.20	.28	
	33-63	4.5-5.5	40-70	1.45-1.55	0.60-2.00	0.10-0.14	3.0-5.9	0.0-0.5	.15	.28	
FgD2:											
Fullerton	0-11	4.5-5.5	15-27	1.45-1.55	0.60-2.00	0.10-0.16	0.0-2.9	0.5-2.0	.20	.32	5
	11-19	4.5-5.5	20-35	1.45-1.55	0.60-2.00	0.10-0.15	0.0-2.9	0.0-0.5	.20	.28	
	19-33	4.5-5.5	40-70	1.45-1.55	0.60-2.00	0.10-0.14	3.0-5.9	0.0-0.5	.20	.28	
	33-63	4.5-5.5	40-70	1.45-1.55	0.60-2.00	0.10-0.14	3.0-5.9	0.0-0.5	.15	.28	
FgE3:											
Fullerton	0-11	4.5-5.5	15-27	1.45-1.55	0.60-2.00	0.10-0.16	0.0-2.9	0.5-2.0	.20	.32	5
	11-19	4.5-5.5	20-35	1.45-1.55	0.60-2.00	0.10-0.15	0.0-2.9	0.0-0.5	.20	.28	
	19-33	4.5-5.5	40-70	1.45-1.55	0.60-2.00	0.10-0.14	3.0-5.9	0.0-0.5	.20	.28	
	33-63	4.5-5.5	40-70	1.45-1.55	0.60-2.00	0.10-0.14	3.0-5.9	0.0-0.5	.15	.28	

Table 15.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors Kw	Kf	T
	In	pH	Pct	g/cc	In/hr	In/in	Pct	Pct			
FgF2:											
Fullerton------------------	0-11	4.5-5.5	15-27	1.45-1.55	0.60-2.00	0.10-0.16	0.0-2.9	0.5-2.0	.20	.32	5
	11-19	4.5-5.5	20-35	1.45-1.55	0.60-2.00	0.10-0.15	0.0-2.9	0.0-0.5	.20	.28	
	19-33	4.5-5.5	40-70	1.45-1.55	0.60-2.00	0.10-0.14	3.0-5.9	0.0-0.5	.20	.28	
	33-63	4.5-5.5	40-70	1.45-1.55	0.60-2.00	0.10-0.14	3.0-5.9	0.0-0.5	.15	.28	
FRC:											
Fullerton------------------	0-11	4.5-5.5	15-27	1.45-1.55	0.60-2.00	0.10-0.16	0.0-2.9	0.5-2.0	.20	.32	5
	11-19	4.5-5.5	20-35	1.45-1.55	0.60-2.00	0.10-0.15	0.0-2.9	0.0-0.5	.20	.28	
	19-33	4.5-5.5	40-70	1.45-1.55	0.60-2.00	0.10-0.14	3.0-5.9	0.0-0.5	.20	.28	
	33-63	4.5-5.5	40-70	1.45-1.55	0.60-2.00	0.10-0.14	3.0-5.9	0.0-0.5	.15	.28	
Urban land.											
FRD:											
Fullerton------------------	0-11	4.5-5.5	15-27	1.45-1.55	0.60-2.00	0.10-0.16	0.0-2.9	0.5-2.0	.20	.32	5
	11-19	4.5-5.5	20-35	1.45-1.55	0.60-2.00	0.10-0.15	0.0-2.9	0.0-0.5	.20	.28	
	19-33	4.5-5.5	40-70	1.45-1.55	0.60-2.00	0.10-0.14	3.0-5.9	0.0-0.5	.20	.28	
	33-63	4.5-5.5	40-70	1.45-1.55	0.60-2.00	0.10-0.14	3.0-5.9	0.0-0.5	.15	.28	
Urban land.											
Ha:											
Hamblen--------------------	0-7	5.1-7.3	15-25	1.30-1.45	0.60-2.00	0.18-0.20	0.0-2.9	1.0-3.0	.32	.32	5
	7-52	5.1-7.3	18-32	1.30-1.45	0.60-2.00	0.17-0.20	0.0-2.9	0.5-1.5	.32	.32	
	52-60	5.1-7.3	25-50	1.40-1.55	0.60-2.00	0.11-0.17	0.0-2.9	0.0-0.5	.28	.32	
HrC:											
Harmiller	0-5	3.5-6.0	8-18	1.20-1.40	2.00-6.00	0.12-0.18	0.0-2.9	1.0-4.0	.24	.24	3
	5-23	3.5-6.0	18-35	1.40-1.80	0.60-2.00	0.12-0.18	0.0-2.9	0.0-0.5	.28	.28	
	23-30	---	---		0.00-0.20	-	---	---	---	---	
KeC:											
Keener---------------------	0-3	4.5-6.0	5-20	1.35-1.60	2.00-6.00	0.14-0.18	0.0-2.9	1.0-3.0	.15	.24	5
	3-60	4.5-6.0	20-35	1.30-1.45	0.60-2.00	0.10-0.15	0.0-2.9	0.0-0.5	.17	.28	
Lostcove-------------------	0-5	3.6-6.0	7-20	1.30-1.50	2.00-6.00	0.13-0.19	0.0-2.9	1.0-3.0	.10	.24	5
	5-50	3.6-6.0	18-35	1.30-1.65	0.60-2.00	0.04-0.09	0.0-2.9	0.5-1.0	.10	.28	
	50-76	3.6-6.0	18-40	1.30-1.65	0.60-2.00	0.04-0.09	0.0-2.9	0.0-0.5	.10	.28	
KeF:											
Keener---------------------	0-3	4.5-6.0	5-20	1.35-1.60	2.00-6.00	0.14-0.18	0.0-2.9	1.0-3.0	.15	.24	5
	3-60	4.5-6.0	20-35	1.30-1.45	0.60-2.00	0.10-0.15	0.0-2.9	0.0-0.5	.17	.28	
Lostcove-------------------	0-5	3.6-5.5	7-20	1.30-1.50	2.00-6.00	0.13-0.19	0.0-2.9	1.0-3.0	.10	.24	5
	5-50	3.6-5.5	18-35	1.30-1.65	0.60-2.00	0.04-0.09	0.0-2.9	0.5-1.0	.10	.28	
	50-76	3.6-5.5	18-40	1.30-1.65	0.60-2.00	0.04-0.09	0.0-2.9	0.0-0.5	.10	.28	
LoD:											
Lostcove-------------------	0-5	3.6-5.5	7-20	1.30-1.50	2.00-6.00	0.13-0.19	0.0-2.9	1.0-3.0	.10	.24	5
	5-50	3.6-5.5	18-35	1.30-1.65	0.60-2.00	0.04-0.09	0.0-2.9	0.5-1.0	.10	.28	
	50-76	3.6-5.5	18-40	1.30-1.65	0.60-2.00	0.04-0.09	0.0-2.9	0.0-0.5	.10	.28	
LoE:											
Lostcove-------------------	0-5	3.6-5.5	7-20	1.30-1.50	2.00-6.00	0.13-0.19	0.0-2.9	1.0-3.0	.10	.24	5
	5-50	3.6-5.5	18-35	1.30-1.65	0.60-2.00	0.04-0.09	0.0-2.9	0.5-1.0	.10	.28	
	50-76	3.6-5.5	18-40	1.30-1.65	0.60-2.00	0.04-0.09	0.0-2.9	0.0-0.5	.10	.28	
McD:											
McCamy---------------------	0-5	3.6-5.5	7-27	1.20-1.40	0.60-6.00	0.13-0.18	0.0-2.9	0.5-4.0	.28	.28	2
	5-24	3.6-5.5	18-35	1.25-1.35	2.00-6.00	0.12-0.18	0.0-2.9	0.0-0.5	.28	.28	
	24-31	---	---	---	0.20-0.60	---	---	---	---	---	
	31-34	---	---		0.00-0.20	---	---	---	---	---	

Table 15.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors		
									Kw	Kf	T
	In	pH	Pct	g/cc	In/hr	In/in	Pct	Pct			
MfF:											
Minvale-------	0-13	4.5-5.5	15-27	1.30-1.45	2.00-6.00	0.14-0.18	0.0-2.9	0.5-2.0	.24	.37	5
	13-28	4.5-5.5	20-35	1.40-1.55	0.60-2.00	0.12-0.18	0.0-2.9	0.0-0.5	.20	.32	
	28-68	4.5-5.5	25-45	1.40-1.55	0.60-2.00	0.11-0.17	0.0-2.9	0.0-0.5	.20	.32	
Fullerton--------------	0-11	4.5-5.5	15-27	1.45-1.55	0.60-2.00	0.10-0.16	0.0-2.9	0.5-2.0	.20	.32	5
	11-19	4.5-5.5	20-35	1.45-1.55	0.60-2.00	0.10-0.15	0.0-2.9	0.0-0.5	.20	.28	
	19-33	4.5-5.5	40-70	1.45-1.55	0.60-2.00	0.10-0.14	3.0-5.9	0.0-0.5	.20	.28	
	33-63	4.5-5.5	40-70	1.45-1.55	0.60-2.00	0.10-0.14	3.0-5.9	0.0-0.5	.15	.28	
MnC:											
Minvale-----------------	0-13	4.5-5.5	15-27	1.30-1.45	2.00-6.00	0.14-0.18	0.0-2.9	0.5-2.0	.24	.37	5
	13-28	4.5-5.5	20-35	1.40-1.55	0.60-2.00	0.12-0.18	0.0-2.9	0.0-0.5	.20	.32	
	28-68	4.5-5.5	25-45	1.40-1.55	0.60-2.00	0.11-0.17	0.0-2.9	0.0-0.5	.20	.32	
MnD:											
Minvale-----------------	0-13	4.5-5.5	15-27	1.30-1.45	2.00-6.00	0.14-0.18	0.0-2.9	0.5-2.0	.24	.37	5
	13-28	4.5-5.5	20-35	1.40-1.55	0.60-2.00	0.12-0.18	0.0-2.9	0.0-0.5	.20	.32	
	28-68	4.5-5.5	25-45	1.40-1.55	0.60-2.00	0.11-0.17	0.0-2.9	0.0-0.5	.20	.32	
NcC:											
Needmore------	0-7	5.1-6.5	18-35	1.30-1.45	0.60-2.00	0.18-0.22	0.0-2.9	0.5-2.0	.37	.37	3
	7-12	5.1-6.5	20-40	1.35-1.55	0.60-2.00	0.16-0.24	0.0-2.9	0.5-1.0	.32	.32	
	12-31	5.1-6.5	35-55	1.45-1.60	0.20-0.60	0.14-0.17	3.0-5.9	0.0-0.5	.24	.24	
	31-35	5.6-6.5	40-55	1.45-1.60	0.20-0.60	0.05-0.10	3.0-5.9	0.0-0.5	.24	.32	
	35-40	---	---	---	0.00-0.20	---				---	
Corryton------ ---------	0-9	4.5-6.0	8-25	1.30-1.50	0.60-2.00	0.15-0.24	0.0-2.9	0.5-2.0	.32	.32	4
	9-17	4.5-6.0	27-40	1.35-1.55	0.60-2.00	0.16-0.24	0.0-2.9	0.5-1.0	.32	.32	
	17-41	4.5-6.0	27-55	1.35-1.55	0.20-0.60	0.12-0.22	3.0-5.9	0.0-0.5	.32	.32	
	41-75	4.5-6.0	18-40	1.35-1.60	0.60-2.00	0.12-0.20	0.0-2.9	0.0-0.5	.28	.32	
Ne:											
Neubert-----------------	0-6	5.6-6.5	12-25	1.35-1.50	0.60-2.00	0.15-0.18	0.0-2.9	1.0-3.0	.28	.28	5
	6-45	5.1-6.5	18-35	1.30-1.50	0.60-2.00	0.12-0.16	0.0-2.9	0.0-1.0	.24	.24	
	45-74	5.1-7.3	20-35	1.35-1.55	0.60-2.00	0.14-0.20	0.0-2.9	0.1-2.0	.28	.28	
NnC:											
Nonaburg----------------	0-2	6.1-7.8	20-40	1.50-1.62	0.20-0.60	0.10-0.15	0.0-2.9	0.5-2.0	.28	.32	1
	2-10	6.1-7.8	35-60	1.55-1.65	0.20-0.60	0.09-0.14	3.0-5.9	0.0-0.5	.17	.24	
	10-39	---	---	---	0.00-0.20	---	---	---	---	---	
Needmore----------------	0-7	5.1-6.5	18-35	1.30-1.45	0.60-2.00	0.18-0.22	0.0-2.9	0.5-2.0	.37	.37	3
	7-12	5.1-6.5	20-40	1.35-1.55	0.60-2.00	0.16-0.24	0.0-2.9	0.5-1.0	.32	.32	
	12-31	5.1-6.5	35-55	1.45-1.60	0.20-0.60	0.14-0.17	3.0-5.9	0.0-0.5	.24	.24	
	31-35	5.6-6.5	40-55	1.45-1.60	0.20-0.60	0.05-0.10	3.0-5.9	0.0-0.5	.24	.32	
	35-40	---	---	---	0.00-0.20	---	---	---	---	---	
NnD:											
Nonaburg----------------	0-2	6.1-7.8	20-40	1.50-1.62	0.20-0.60	0.10-0.15	0.0-2.9	0.5-2.0	.28	.32	1
	2-10	6.1-7.8	35-60	1.55-1.65	0.20-0.60	0.09-0.14	3.0-5.9	0.0-0.5	.17	.24	
	10-39	---	---	---	0.00-0.20	---	---	---	---		
Needmore----------------	0-7	5.1-6.5	18-35	1.30-1.45	0.60-2.00	0.18-0.22	0.0-2.9	0.5-2.0	.37	.37	3
	7-12	5.1-6.5	20-40	1.35-1.55	0.60-2.00	0.16-0.24	0.0-2.9	0.5-1.0	.32	.32	
	12-31	5.1-6.5	35-55	1.45-1.60	0.20-0.60	0.14-0.17	3.0-5.9	0.0-0.5	.24	.24	
	31-35	5.6-6.5	40-55	1.45-1.60	0.20-0.60	0.05-0.10	3.0-5.9	0.0-0.5	.24	.32	
	35-40		---	---	0.00-0.20	---	---	---	---	---	
NoF:											
Nonaburg----------------	0-2	6.1-7.8	20-40	1.50-1.62	0.20-0.60	0.10-0.15	0.0-2.9	0.5-2.0	.28	.32	1
	2-10	6.1-7.8	35-60	1.55-1.65	0.20-0.60	0.09-0.14	3.0-5.9	0.0-0.5	.17	.24	
	10-39	---	---	---	0.00-0.20	---	---	---	---	---	

Table 15.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Clay	Moist bulk density	Permea- bility (K_{sat})	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors		
									Kw	Kf	T
	In	pH	Pct	g/cc	In/hr	In/in	Pct	Pct			
NoF:											
Needmore	0-7	5.1-6.5	18-35	1.30-1.45	0.60-2.00	0.18-0.22	0.0-2.9	0.5-2.0	.37	.37	3
	7-12	5.1-6.5	20-40	1.35-1.55	0.60-2.00	0.16-0.24	0.0-2.9	0.5-1.0	.32	.32	
	12-31	5.1-6.5	35-55	1.45-1.60	0.20-0.60	0.14-0.17	3.0-5.9	0.0-0.5	.24	.24	
	31-35	5.6-6.5	40-55	1.45-1.60	0.20-0.60	0.05-0.10	3.0-5.9	0.0-0.5	.24	.32	
	35-40	---	---	---	0.00-0.20	---	---		---	---	
Rock outcrop.											
Pe:											
Pettyjon	0-7	6.1-7.3	20-35	1.20-1.50	0.60-2.00	0.17-0.22	0.0-2.9	1.0-3.0	.32	.32	5
	7-61	6.1-7.3	18-35	1.20-1.50	0.60-2.00	0.17-0.22	0.0-2.9	0.1-1.0	.32	.32	
PM:											
Pits, Mines, Dumps.											
RhF:											
Red Hills	0-4	4.5-6.0	10-25	1.20-1.40	2.00-6.00	0.12-0.18	0.0-2.9	1.0-4.0	.20	.24	3
	4-26	4.5-6.0	15-35	1.20-1.40	2.00-6.00	0.12-0.18	0.0-2.9	0.0-0.5	.20	.24	
	26-32	---	---	---	0.20-0.60	---	---	---	---	---	
Steekee	0-4	4.5-6.0	8-18	1.40-1.55	2.00-6.00	0.12-0.18	0.0-2.9	1.0-3.0	.24	.24	2
	4-10	4.5-6.0	25-40	1.40-1.55	0.60-6.00	0.07-0.12	0.0-2.9	0.0-1.0	.28	.28	
	10-14	4.5-6.0	25-40	1.40-1.55	0.60-6.00	0.07-0.12	0.0-2.9	0.0-0.5	.28	.28	
	14-60	---	---	---	0.20-0.60		---	---	---	---	
Rk:											
Rockdell	0-10	4.5-6.0	10-22	1.40-1.70	2.00-6.00	0.05-0.10	0.0-2.9	0.5-2.0	.20	.32	3
	10-41	4.5-6.5	18-35	1.45-1.70	0.60-6.00	0.07-0.13	0.0-2.9	0.1-1.0	.15	.28	
	41-60	4.5-6.5	27-45	1.45-1.70	0.60-2.00	0.06-0.12	3.0-5.9	0.1-0.5	.10	.28	
RoF:											
Rock outcrop.											
Bradyville	0-6	5.1-5.5	8-20	1.35-1.55	2.00-6.00	0.07-0.12	0.0-2.9	0.5-2.0	.20	.32	3
	6-44	5.1-7.3	40-60	1.30-1.50	0.20-0.60	0.10-0.15	3.0-5.9	0.0-0.5	.28	.28	
	44-48	---	---	---	0.00-0.06	---	---	---		---	
ShB:											
Shady	0-8	4.5-6.5	10-25	1.35-1.50	0.60-6.00	0.12-0.18	0.0-2.9	1.0-3.0	.28	.28	5
	8-60	4.5-6.5	20-35	1.35-1.55	0.60-2.00	0.14-0.20	0.0-2.9	0.0-0.5	.28	.28	
ShC:											
Shady	0-8	4.5-6.5	10-25	1.35-1.50	0.60-6.00	0.12-0.18	0.0-2.9	1.0-3.0	.28	.28	5
	8-60	4.5-6.5	20-35	1.35-1.55	0.60-2.00	0.14-0.20	0.0-2.9	0.0-0.5	.28	.28	
St:											
Steadman	0-7	5.6-7.8	20-35	1.20-1.40	0.60-2.00	0.20-0.26	0.0-2.9	2.0-4.0	.32	.32	5
	7-36	5.6-7.8	18-35	1.20-1.40	0.20-0.60	0.17-0.22	0.0-2.9	0.1-1.0	.32	.32	
	36-64	5.6-7.8	18-35	1.20-1.40	0.20-0.60	0.17-0.22	0.0-2.9	0.1-0.5	.32	.32	
SuC:											
Sunlight	0-3	4.5-5.5	10-27	1.40-1.60	0.60-2.00	0.08-0.14	0.0-2.9	1.0-2.0	.24	.28	2
	3-13	4.5-5.5	18-35	1.50-1.70	0.60-2.00	0.10-0.18	0.0-2.9	0.0-0.5	.17	.28	
	13-20	---	---	---	0.06-0.20	---	---	---	---	-	
Apison	0-3	4.5-5.5	12-27	1.30-1.45	0.60-2.00	0.15-0.20	0.0-2.9	1.0-3.0	.37	.37	3
	3-22	4.5-5.5	20-35	1.35-1.50	0.60-2.00	0.13-0.18	0.0-2.9	0.0-0.5	.37	.37	
	22-60	---	---	---	0.00-0.20	---	---	---	---	---	

Table 15.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Clay	Moist bulk density	Permea-bility (K_{sat})	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T
	In	pH	Pct	g/cc	In/hr	In/in	Pct	Pct			
SuD:											
Sunlight	0-3	4.5-5.5	10-27	1.40-1.60	0.60-2.00	0.08-0.14	0.0-2.9	1.0-2.0	.24	.28	2
	3-13	4.5-5.5	18-35	1.50-1.70	0.60-2.00	0.10-0.18	0.0-2.9	0.0-0.5	.17	.28	
	13-20	---	---	---	0.06-0.20	---	---	---	---	---	
Apison	0-3	4.5-5.5	12-27	1.30-1.45	0.60-2.00	0.15-0.20	0.0-2.9	1.0-3.0	.37	.37	3
	3-22	4.5-5.5	20-35	1.35-1.50	0.60-2.00	0.13-0.18	0.0-2.9	0.0-0.5	.37	.37	
	22-60	---	---	---	0.00-0.20	---	---	---	---	---	
TaB:											
Tasso	0-9	4.5-6.0	10-25	1.35-1.45	0.60-2.00	0.17-0.20	0.0-2.9	0.5-2.0	.28	.32	5
	9-30	4.5-6.0	20-35	1.40-1.55	0.60-2.00	0.17-0.19	0.0-2.9	0.0-0.5	.32	.32	
	30-42	4.5-5.5	20-45	1.50-1.70	0.20-0.60	0.10-0.15	0.0-2.9	0.0-0.5	.32	.32	
	42-62	4.5-5.5	30-45	1.35-1.50	0.20-2.00	0.10-0.15	3.0-5.9	0.0-0.5	.28	.28	
TaC:											
Tasso	0-9	4.5-6.0	10-25	1.35-1.45	0.60-2.00	0.17-0.20	0.0-2.9	0.5-2.0	.28	.32	5
	9-30	4.5-6.0	20-35	1.40-1.55	0.60-2.00	0.17-0.19	0.0-2.9	0.0-0.5	.32	.32	
	30-42	4.5-5.5	20-45	1.50-1.70	0.20-0.60	0.10-0.15	0.0-2.9	0.0-0.5	.32	.32	
	42-62	4.5-5.5	30-45	1.35-1.50	0.20-2.00	0.10-0.15	3.0-5.9	0.0-0.5	.28	.28	
TeC:											
Tellico	0-4	4.5-5.5	10-25	1.35-1.50	0.60-2.00	0.12-0.18	0.0-2.9	1.0-3.0	.28	.28	3
	4-70	4.5-5.5	30-50	1.40-1.55	0.60-2.00	0.12-0.16	3.0-5.9	0.0-0.5	.28	.28	
TeE3:											
Tellico	0-4	4.5-5.5	10-25	1.35-1.50	0.60-2.00	0.12-0.18	0.0-2.9	1.0-3.0	.28	.28	3
	4-70	4.5-5.5	30-50	1.40-1.55	0.60-2.00	0.12-0.16	3.0-5.9	0.0-0.5	.28	.28	
ThF:											
Tellico	0-4	4.5-5.5	10-25	1.35-1.50	0.60-2.00	0.12-0.18	0.0-2.9	1.0-3.0	.28	.28	5
	4-70	4.5-5.5	30-50	1.40-1.55	0.60-2.00	0.12-0.16	3.0-5.9	0.0-0.5	.28	.28	
Red Hills	0-4	4.5-6.0	10-25	1.20-1.40	2.00-6.00	0.12-0.18	0.0-2.9	1.0-4.0	.20	.24	3
	4-26	4.5-6.0	15-35	1.20-1.40	2.00-6.00	0.12-0.18	0.0-2.9	0.0-0.5	.20	.24	
	26-32	---	---	---	0.20-0.60	---					
TkD:											
Tellico	0-4	4.5-5.5	10-25	1.35-1.50	0.60-2.00	0.12-0.18	0.0-2.9	1.0-3.0	.28	.28	3
	4-70	4.5-5.5	30-50	1.40-1.55	0.60-2.00	0.12-0.16	3.0-5.9	0.0-0.5	.28	.28	
Steekee	0-4	4.5-6.0	8-18	1.40-1.55	2.00-6.00	0.12-0.18	0.0-2.9	1.0-3.0	.24	.24	2
	4-10	4.5-6.0	25-40	1.40-1.55	0.60-6.00	0.07-0.12	0.0-2.9	0.0-1.0	.28	.28	
	10-14	4.5-6.0	25-40	1.40-1.55	0.60-6.00	0.07-0.12	0.0-2.9	0.0-0.5	.28	.28	
	14-60	---	---	---	0.20-0.60	---	---	--	---	---	
To:											
Toccoa	0-10	5.1-6.5	7-17	1.35-1.45	2.00-6.00	0.09-0.12	0.0-2.9	1.0-2.0	.24	.24	5
	10-60	5.1-6.5	2-19	1.40-1.50	2.00-6.00	0.09-0.12	0.0-2.9	0.1-1.0	.20	.20	
TwB2:											
Townley	0-5	4.5-5.5	10-27	1.30-1.60	0.60-2.00	0.12-0.14	0.0-2.9	0.5-2.0	.37	.37	3
	5-28	4.5-5.5	30-60	1.30-1.60	0.06-0.20	0.12-0.18	3.0-5.9	0.0-0.5	.28	.32	
	28-50	---	---	---	0.00-0.20	---	---	---	---	---	
Coile	0-3	4.5-6.0	7-30	1.20-1.40	0.60-2.00	0.33-0.46	0.0-2.9	0.5-2.0	.24	.32	2
	3-10	4.5-6.0	15-50	1.25-1.45	0.60-2.00	0.20-0.30	0.0-2.9	0.1-0.5	.20	.28	
	10-18	4.5-6.0	15-50	1.20-1.50	0.20-2.00	0.15-0.30	0.0-2.9	0.1-0.5	.20	.28	
	18-24	---	---	---	0.00-0.20	---	---	---	---	---	
UDC:											
Udorthents	---	3.6-7.3	---	---	0.06-2.00	---	---	---	---	---	-
Urban land											

Table 15.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Clay	Moist bulk density	Permea-bility (K_{sat})	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T
	In	pH	Pct	g/cc	In/hr	In/in	Pct	Pct			
UnE:											
Unicoi------------------	0-5	3.6-5.5	5-20	1.45-1.55	2.00-6.00	0.06-0.09	0.0-2.9	0.5-2.0	.15	.24	1
	5-15	3.6-5.5	5-20	1.45-1.60	2.00-6.00	0.04-0.09	0.0-2.9	0.0-0.5	.15	.24	
	15-20	---	---	---	0.00-0.01	---	---		---	---	
UoG:											
Unicoi------------------	0-5	3.6-5.5	5-20	1.45-1.55	2.00-6.00	0.06-0.09	0.0-2.9	0.5-2.0	.15	.24	1
	5-15	3.6-5.5	5-20	1.45-1.60	2.00-6.00	0.04-0.09	0.0-2.9	0.0-0.5	.15	.24	
	15-20	---	-	---	0.00-0.01	---	---	---	---	---	
Rock outcrop.											
URC:											
Urban land.											
UU:											
Urban land.											
Udorthents--------------	---	3.6-7.3	---	---	0.06-2.00	---	---	---	---	---	-
W:											
Water.											
WaB2:											
Waynesboro--------------	0-7	4.5-6.0	15-35	1.40-1.55	0.60-2.00	0.15-0.21	0.0-2.9	0.5-2.0	.28	.28	5
	7-79	4.5-5.5	35-50	1.40-1.55	0.60-2.00	0.13-0.18	3.0-5.9	0.0-0.5	.28	.28	
WaC2:											
Waynesboro--------------	0-7	4.5-6.0	15-35	1.40-1.55	0.60-2.00	0.15-0.21	0.0-2.9	0.5-2.0	.28	.28	5
	7-79	4.5-5.5	35-50	1.40-1.55	0.60-2.00	0.13-0.18	3.0-5.9	0.0-0.5	.28	.28	
WbB2:											
Waynesboro--------------	0-8	4.5-6.0	15-27	1.35-1.50	0.60-2.00	0.18-0.22	0.0-2.9	0.5-2.0	.37	.37	5
	8-60	4.5-5.5	35-50	1.40-1.55	0.60-2.00	0.13-0.18	3.0-5.9	0.0-0.5	.28	.28	
WbC2:											
Waynesboro--------------	0-8	4.5-6.0	15-27	1.35-1.50	0.60-2.00	0.18-0.22	0.0-2.9	0.5-2.0	.37	.37	5
	8-60	4.5-5.5	35-50	1.40-1.55	0.60-2.00	0.13-0.18	3.0-5.9	0.0-0.5	.28	.28	
WNC:											
Waynesboro--------------	0-8	4.5-6.0	15-27	1.35-1.50	0.60-2.00	0.18-0.22	0.0-2.9	0.5-2.0	.37	.37	5
	8-60	4.5-5.5	35-50	1.40-1.55	0.60-2.00	0.13-0.18	3.0-5.9	0.0-0.5	.28	.28	
Urban land.											
WoB:											
Wolftever---------------	0-8	4.5-6.0	18-35	1.35-1.45	0.60-2.00	0.17-0.20	0.0-2.9	1.0-3.0	.37	.37	5
	8-16	4.5-5.5	20-40	1.35-1.50	0.20-0.60	0.15-0.18	0.0-2.9	0.5-1.0	.32	.32	
	16-72	4.5-5.5	35-55	1.40-1.60	0.20-0.60	0.13-0.17	3.0-5.9	0.0-0.5	.32	.32	
WoC:											
Wolftever---------------	0-8	4.5-6.0	18-35	1.35-1.45	0.60-2.00	0.17-0.20	0.0-2.9	1.0-3.0	.37	.37	5
	8-16	4.5-5.5	20-40	1.35-1.50	0.20-0.60	0.15-0.18	0.0-2.9	0.5-1.0	.32	.32	
	16-72	4.5-5.5	35-55	1.40-1.60	0.20-0.60	0.13-0.17	3.0-5.9	0.0-0.5	.32	.32	

Table 16.--Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Restrictive layer			Risk of corrosion	
	Kind	Depth to top	Hardness	Uncoated steel	Concrete
		In			
AaB2:					
Alcoa	---	---	---	High	Moderate
AaC2:					
Alcoa	---	---	---	High	Moderate
AaD2:					
Alcoa	---	---	---	High	Moderate
AcF:					
Apison	Bedrock (paralithic)	20-40	Moderately cemented	Moderate	Moderate
Coile	Bedrock (paralithic)	9-20	Moderately cemented	Moderate	Moderate
AsC:					
Apison	Bedrock (paralithic)	20-40	Moderately cemented	Moderate	Moderate
Sunlight	Bedrock (paralithic)	10-20	Moderately cemented	Low	High
AsF:					
Apison	Bedrock (paralithic)	20-40	---	Moderate	Moderate
Sunlight	Bedrock (paralithic)	10-20	---	Low	High
At:					
Atkins	---	---	---	High	Moderate
Arkaqua	---	---	---	High	Moderate
BeB:					
Bellamy	Fragipan	18-36	Weakly cemented	Moderate	Moderate
Bm:					
Bloomingdale	---	---		High	Low
BoC2:					
Bodine	---	---	---	Low	High
BoD2:					
Bodine	---	---	---	Low	High
BoF2:					
Bodine	---	---		Low	High
BrE:					
Bradyville	Bedrock (lithic)	40-60	Indurated	High	Moderate
Rock outcrop.					
BrF:					
Bradyville	Bedrock (lithic)	40-60	Indurated	High	Moderate
Rock outcrop.					

Table 16.--Soil Features--Continued

Map symbol and soil name	Restrictive layer			Risk of corrosion	
	Kind	Depth to top	Hardness	Uncoated steel	Concrete
		In			
CaF:					
Cataska	Bedrock (paralithic)	10 20	Moderately cemented	Low	Moderate
CaG:					
Cataska	Bedrock (paralithic)	10-20	Moderately cemented	Low	Moderate
CgC:					
Coghill	---	---	---	High	Moderate
Apison	Bedrock (paralithic)	20-40	Moderately cemented	Moderate	Moderate
CgD:					
Coghill	---	---	---	High	Moderate
Apison	Bedrock (paralithic)	20-40	Moderately cemented	Moderate	Moderate
CnC2:					
Coile	Bedrock (paralithic)	9-20	Weakly cemented	Moderate	Moderate
CnD2:					
Coile	Bedrock (paralithic)	9-20	Weakly cemented	Moderate	Moderate
CnE3:					
Coile	Bedrock (paralithic)	9-20	Weakly cemented	Moderate	Moderate
CoC2:					
Collegedale	---	---	---	High	Moderate
CrB:					
Corryton		---	---	High	Moderate
Needmore	Bedrock (paralithic)	20-40	Moderately cemented	High	Moderate
CtB2:					
Corryton	---	---	---	High	Moderate
Townley	Bedrock (paralithic)	20-40	Moderately cemented	Moderate	High
CtC2:					
Corryton	---	---	---	High	Moderate
Townley	Bedrock (paralithic)	20-40	Moderately cemented	Moderate	High
CUC:					
Corryton	---	---	---	High	Moderate
Urban land.					
DcB2:					
Decatur	---	---	---	High	Moderate

Table 16.--Soil Features--Continued

Map symbol and soil name	Restrictive layer			Risk of corrosion	
	Kind	Depth to top	Hardness	Uncoated steel	Concrete
		In			
DcC2:					
Decatur	---	---	---	High	Moderate
DcD2:					
Decatur	---		---	High	Moderate
DeB:					
Dewey	---	---	---	High	Moderate
DwC2:					
Dewey	---	---	---	High	Moderate
DwD2:					
Dewey	---	---	---	High	Moderate
DX:					
Dumps, landfills.					
DY:					
Dumps, pulpwood processing waste.					
Ea:					
Emory	---	---	---	Moderate	Moderate
Eo:					
Etowah	---	---	---	Low	Moderate
EtB:					
Etowah	---	---	-	Low	Moderate
EtC:					
Etowah	---	---	---	Low	Moderate
FcB2:					
Fullerton	---	---	---	High	Moderate
FgC2:					
Fullerton	---	---	--	High	Moderate
FgD2:					
Fullerton	---	---	---	High	Moderate
FgE3:					
Fullerton	---	---	---	High	Moderate
FgF2:					
Fullerton	---	---	---	High	Moderate
FRC:					
Fullerton	---	---	---	High	Moderate
Urban land.					
FRD:					
Fullerton	---	---	-	High	Moderate
Urban land.					
Ha:					
Hamblen	---	---	---	Moderate	Moderate

Table 16.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Hardness	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In			
HrC:					
Harmiller	Bedrock (paralithic)	20-40	Moderately cemented	Low	High
KeC:					
Keener	---	---		Moderate	High
Lostcove				Low	High
KeF:					
Keener	---	---	---	Moderate	High
Lostcove	---	---	-	Low	High
LoD:					
Lostcove	---	---	---	Low	High
LoE:					
Lostcove	---	---	---	Low	High
McD:					
McCamy	Bedrock (lithic)	20 40	Indurated	Moderate	High
MfF:					
Minvale	---	---	-	Moderate	Low
Fullerton	---	---	---	High	Moderate
MnC:					
Minvale	---	---	---	Moderate	Low
MnD:					
Minvale				Moderate	Low
NcC:					
Needmore	Bedrock (paralithic)	20-40	Moderately cemented	High	Moderate
Corryton	---	---	---	Moderate	High
Ne:					
Neubert	---	---	---	Low	Low
NnC:					
Nonaburg	Bedrock (paralithic)	8 20	Very strongly cemented	High	Low
Needmore	Bedrock (paralithic)	20-40	Moderately cemented	High	Moderate
NnD:					
Nonaburg	Bedrock (paralithic)	8-20	Very strongly cemented	High	Low
Needmore	Bedrock (paralithic)	20-40	Moderately cemented	High	Moderate
NoF:					
Nonaburg	Bedrock (paralithic)	8-20	Very strongly cemented	High	Low

Table 16.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Hardness	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In			
NoF:					
Needmore	Bedrock (paralithic)	20-40	Moderately cemented	High	Moderate
Rock outcrop.					
Pe:					
Pettyjon	---	---		Moderate	Low
PM:					
Pits, Mines, Dumps.					
RhF:					
Red Hills	Bedrock (paralithic)	20-40	Moderately cemented	Moderate	Moderate
Steekee	Bedrock (paralithic)	12-20	Moderately cemented	Low	Moderate
Rk:					
Rockdell	---	---	---	Low	Moderate
RoF:					
Rock outcrop.					
Bradyville	Bedrock (lithic)	40-60	Indurated	High	Moderate
ShB:					
Shady	---	---	---	Low	Moderate
ShC:					
Shady	---	---	---	Low	Moderate
St:					
Steadman	---	---	---	Moderate	Low
SuC:					
Sunlight	Bedrock (paralithic)	10-20	Moderately cemented	Low	High
Apison	Bedrock (paralithic)	20-40	Moderately cemented	Moderate	Moderate
SuD:					
Sunlight	Bedrock (paralithic)	10-20	Moderately cemented	Low	High
Apison	Bedrock (paralithic)	20-40	Moderately cemented	Moderate	Moderate
TaB:					
Tasso	---	---	---	Moderate	Moderate
TaC:					
Tasso	---	---	---	Moderate	Moderate
TeC:					
Tellico	---	---	---	High	Moderate
TeE3:					
Tellico	---	---	---	High	Moderate

Table 16. Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Hardness	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In			
ThF:					
Tellico		---	---	High	Moderate
Red Hills	Bedrock (paralithic)	20-40	Moderately cemented	Moderate	Moderate
TkD:					
Tellico		---	---	High	Moderate
Steekee	Bedrock (paralithic)	12-20	Moderately cemented	Moderate	Moderate
To:					
Toccoa			---	Low	Moderate
TwB2:					
Townley	Bedrock (paralithic)	20-40	Moderately cemented	Moderate	High
Coile	Bedrock (paralithic)	9-20	Moderately cemented	Moderate	Moderate
UDC:					
Udorthents.					
Urban land.					
UnE:					
Unicoi	Bedrock (lithic)	7-20	Indurated	Low	High
UoG:					
Unicoi	Bedrock (lithic)	7-20	Indurated	Low	High
Rock outcrop.					
URC:					
Urban land.					
UU:					
Urban land.					
Udorthents.					
W:					
Water.					
WaB2:					
Waynesboro	---	---	---	High	High
WaC2:					
Waynesboro	---	---	---	High	High
WbB2:					
Waynesboro		---	---	High	High
WbC2:					
Waynesboro	---	---	---	High	High
WNC:					
Waynesboro		---	---	High	High
Urban land.					

Table 16.--Soil Features Continued

Map symbol and soil name	Restrictive layer			Risk of corrosion	
	Kind	Depth to top	Hardness	Uncoated steel	Concrete
		In			
WoB:					
Wolftever	---		---	High	High
WoC:					
Wolftever	---	---	--	High	High

Table 17.--Water Features

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro-logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
AaB2:									
Alcoa	B	Jan-Dec	---	---	---	---	None	---	None
AaC2:									
Alcoa	B	Jan-Dec	---	---	---	---	None	---	None
AaD2:									
Alcoa	B	Jan-Dec	---	---	---	---	None	---	None
AcF:									
Apison	B	Jan Dec	---	---	---	---	None	---	None
Coile	C	Jan-Dec	---	---	---	---	None	---	None
AsC:									
Apison	B	Jan-Dec	---	---	---	---	None	---	None
Sunlight	C	Jan-Dec	---	---	---	---	None	---	None
AsF:									
Apison	B	Jan Dec	---	---	---	---	None	---	None
Sunlight	C	Jan Dec	---	---	---	---	None	---	None
At:									
Atkins	D								
		January	0.0-1.0	>6.0	---	---	None	Very brief	Frequent
		February	0.0-1.0	>6.0	---	---	None	Very brief	Frequent
		March	0.0-1.0	>6.0	---	---	None	Very brief	Frequent
		April	0.0-1.0	>6.0	---	---	None	Very brief	Frequent
		May	0.0-1.0	>6.0	---	---	None	---	None
		June	0.0 1.0	>6.0	---	---	None	---	None
		November	0.0 1.0	>6.0		---	None	---	None
		December	0.0 1.0	>6.0	---		None	Very brief	Frequent
Arkaqua	C								
		January	1.0-2.0	>6.0	---	---	None	Very brief	Frequent
		February	1.0-2.0	>6.0	---	---	None	Very brief	Frequent
		March	1.0-2.0	>6.0	---	---	None	Very brief	Frequent
		April	1.0-2.0	>6.0	---	---	None	Very brief	Frequent
		December	1.0-2.0	>6.0	---	---	None	Very brief	Frequent
BeB:									
Bellamy	C								
		January	1.2-2.0	2.0-3.0			None	---	None
		February	1.2-2.0	2.0-3.0	---	---	None	---	None
		March	1.2-2.0	2.0-3.0	---	---	None	---	None
		December	1.2-2.0	2.0-3.0	---	---	None	---	None
Bm:									
Bloomingdale	D								
		January	0.0-1.0	>6.0	---	---	None	Brief	Occasional
		February	0.0-1.0	>6.0	---	---	None	Brief	Occasional
		March	0.0-1.0	>6.0	---	---	None	Brief	Occasional
		April	0.0 1.0	>6.0	---	---	None	Brief	Occasional
		May	0.0 1.0	>6.0	---	---	None	Brief	Occasional
		November	0.0 1.0	>6.0	---	---	None	Brief	Occasional
		December	0.0-1.0	>6.0	---	---	None	Brief	Occasional

Table 17.--Water Features -Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
BoC2:									
Bodine	B	Jan-Dec	---	---	---		None	---	None
BoD2:									
Bodine	B	Jan-Dec	---	---	---	---	None	---	None
BoF2:									
Bodine	B	Jan-Dec	---	---	---	---	None	---	None
BrE:									
Bradyville	C	Jan-Dec	---	---	---	---	None		None
Rock outcrop.									
BrF:									
Bradyville	C	Jan-Dec	---	---		---	None	---	None
Rock outcrop.									
CaF:									
Cataska	C	Jan-Dec		---	---		None	---	None
CaG:									
Cataska	C	Jan-Dec	---	---	---	---	None		None
CgC:									
Coghill	B	Jan-Dec	---	---	---	---	None	---	None
Apison	B	Jan-Dec	---	---	---	---	None	---	None
CgD:									
Coghill	B	Jan-Dec	---	---	---		None	---	None
Apison	B	Jan-Dec	---	---	---	---	None	---	None
CnC2:									
Coile	D	Jan-Dec			---	---	None	---	None
CnD2:									
Coile	D	Jan-Dec	---	---			None	---	None
CnE3:									
Coile	D	Jan-Dec	---	---	---	---	None		None
CoC2:									
Collegedale	C	Jan-Dec	---	---	---	---	None	---	None
CrB:									
Corryton	B	Jan-Dec		---	---	---	None	---	None
Needmore	C	Jan-Dec	---	---	---	---	None		None
CtB2:									
Corryton	B	Jan-Dec		---	---	---	None	---	None
Townley	C	Jan-Dec	---	---	---	---	None		None
CtC2:									
Corryton	B	Jan-Dec	---	---	---	---	None	---	None
Townley	C	Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
CUC:									
Corryton	B	Jan-Dec	---	---	---	---	None	---	None
Urban land.									
DcB2:									
Decatur	B	Jan-Dec	---	---	---	---	None	---	None
DcC2:									
Decatur	B	Jan-Dec	---	---	---	---	None	---	None
DcD2:									
Decatur	B	Jan-Dec	---	---	---	---	None	---	None
DeB:									
Dewey	B	Jan-Dec	---	---	---	---	None	---	None
DwC2:									
Dewey	B	Jan-Dec	---	---	---	---	None	---	None
DwD2:									
Dewey	B	Jan-Dec	---	---	---	---	None	---	None
DX:									
Dumps, landfills.									
DY:									
Dumps, pulpwood processing waste	---								
		January	0.0-2.0	>6.0	0.0-1.0	Long	Occasional	---	None
		February	0.0-2.0	>6.0	0.0-1.0	Long	Occasional	---	None
		March	0.0-2.0	>6.0	0.0-1.0	Long	Occasional	---	None
		April	0.0-2.0	>6.0	0.0-1.0	Long	Occasional	---	None
		May	0.0-4.0	>6.0	0.0-1.0	Brief	Occasional	---	None
		June	0.0-4.0	>6.0	0.0-1.0	Brief	Occasional	---	None
		July	0.0-4.0	>6.0	0.0-1.0	Brief	Occasional	---	None
		August	0.0-4.0	>6.0	0.0-1.0	Brief	Occasional	---	None
		September	0.0-4.0	>6.0	0.0-1.0	Brief	Occasional	---	None
		October	0.0-4.0	>6.0	0.0-1.0	Brief	Occasional	---	None
		November	0.0-2.0	>6.0	0.0-1.0	Long	Occasional	---	None
		December	0.0-2.0	>6.0	0.0-1.0	Long	Occasional	---	None
Ea:									
Emory	B								
		January	5.0-6.0	>6.0			None	Very brief	Occasional
		February	5.0-6.0	>6.0	---	---	None	Very brief	Occasional
		March	5.0-6.0	>6.0	---	---	None	Very brief	Occasional
		December	5.0-6.0	>6.0	---	---	None	Very brief	Occasional
Eo:									
Etowah	B								
		January	---	---	---	---	None	Very brief	Occasional
		February	---	---	---	---	None	Very brief	Occasional
		March	---	---	---	---	None	Very brief	Occasional
		December	---	---	---	---	None	Very brief	Occasional
EtB:									
Etowah	B	Jan-Dec	---	---			None	---	None
EtC:									
Etowah	B	Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
FcB2:									
Fullerton	B	Jan Dec		---	---	---	None	---	None
FgC2:									
Fullerton	B	Jan-Dec	---	---	---	---	None	---	None
FgD2:									
Fullerton	B	Jan-Dec	---	---	---	---	None	---	None
FgE3:									
Fullerton	B	Jan Dec	---	---		---	None	---	None
FgF2:									
Fullerton	B	Jan-Dec	---	---	---	---	None	---	None
FRC:									
Fullerton	B	Jan-Dec	---	---	---	---	None	---	None
Urban land.									
FRD:									
Fullerton	B	Jan Dec	---	---	---	---	None	---	None
Urban land.									
Ha:									
Hamblen	C								
		January	1.7-3.0	>6.0	---	---	None	Very brief	Occasional
		February	1.7-3.0	>6.0	---	---	None	Very brief	Occasional
		March	1.7-3.0	>6.0	---	---	None	Very brief	Occasional
		December	1.7 3.0	>6.0	---	---	None	Very brief	Occasional
HrC:									
Harmiller	B	Jan-Dec	---	---	---	---	None	---	None
KeC:									
Keener	B	Jan-Dec	---	---	---	---	None	---	None
Lostcove	B	Jan-Dec	---	---	---	---	None	---	None
KeF:									
Keener	B	Jan Dec	---	---	---	---	None	---	None
Lostcove	B	Jan Dec		- -	---	---	None	---	None
LoD:									
Lostcove	B	Jan-Dec	---	---	---	---	None	---	None
LoE:									
Lostcove	B	Jan-Dec	---	---			None	---	None
McD:									
McCamy	B	Jan-Dec	---	---	---	---	None	---	None
MfF:									
Minvale	B	Jan-Dec	---	--			None	---	None
Fullerton	B	Jan-Dec	---	---	---	---	None	---	None
MnC:									
Minvale	B	Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
MnD:									
Minvale	B	Jan-Dec	---	---	---	---	None	---	None
NcC:									
Needmore	C	Jan-Dec	---	---	---	---	None		None
Corryton	B	Jan-Dec	---	---	---	---	None	---	None
Ne:									
Neubert	C								
		January	1.7-3.3	>6.0	---	---	None	Very brief	Frequent
		February	1.7-3.3	>6.0	---	---	None	Very brief	Frequent
		March	1.7-3.3	>6.0	---	---	None	Very brief	Frequent
		December	1.7-3.3	>6.0	---	---	None	Very brief	Frequent
NnC:									
Nonaburg	D	Jan-Dec	---	---	---	---	None	---	None
Needmore	C	Jan-Dec	---	---	---	---	None	---	None
NnD:									
Nonaburg	D	Jan-Dec	---	---	---	---	None	---	None
Needmore	C	Jan-Dec	---	---	---	---	None	---	None
NoF:									
Nonaburg	D	Jan-Dec	---	---	---	---	None	---	None
Needmore	C	Jan-Dec				---	None	---	None
Rock outcrop.									
Pe:									
Pettyjon	B								
		January	5.0-6.0	>6.0	---	---	None	Very brief	Occasional
		February	5.0-6.0	>6.0	---	---	None	Very brief	Occasional
		March	5.0-6.0	>6.0	---	---	None	Very brief	Occasional
		December					None	Very brief	Occasional
PM:									
Pits, Mines, Dumps.									
RhF:									
Red Hills	B	Jan-Dec	---	---	---	---	None	---	None
Steekee	C	Jan-Dec	---	---	---	---	None	---	None
Rk:									
Rockdell	B								
		January	3.5-5.0	>6.0			None	Very brief	Occasional
		February	3.5-5.0	>6.0	---	---	None	Very brief	Occasional
		March	3.5-5.0	>6.0	---	---	None	Very brief	Occasional
		April	3.5-5.0	>6.0	---	---	None	---	None
		November	3.5-5.0	>6.0	---	---	None	---	None
		December	3.5-5.0	>6.0	---	---	None	Very brief	Occasional
RoF:									
Rock outcrop.									
Bradyville	C	Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
ShB:									
Shady-------------------------	B	Jan-Dec	---	---	---	---	None	---	None
ShC:									
Shady------------------	B	Jan-Dec	---	---	---	---	None	---	None
St:									
Steadman------------------------	C								
		January	1.5-3.0	>6.0	---	---	None	Very brief	Frequent
		February	1.5-3.0	>6.0	---	---	None	Very brief	Frequent
		March	1.5-3.0	>6.0	---		None	Very brief	Frequent
		April	1.5-3.0	>6.0	---	---	None	Very brief	Frequent
		December	1.5-3.0	>6.0	---	---	None	Very brief	Frequent
SuC:									
Sunlight-------------------------	C	Jan-Dec		---	---	---	None	---	None
Apison------------------------	B	Jan-Dec	---	---		---	None	---	None
SuD:									
Sunlight-------------------------	C	Jan-Dec	---	---	---	---	None	---	None
Apison---------------	B	Jan-Dec	---	---	---	---	None	---	None
TaB:									
Tasso--------------------	B								
		January	2.0-3.0	3.0-4.0	---	---	None	---	None
		February	2.0-3.0	3.0-4.0	---	---	None	---	None
		March	2.0-3.0	3.0-4.0	---	---	None	---	None
		December	2.0-3.0	3.0-4.0	---		None	---	None
TaC:									
Tasso-------------	B								
		January	2.0-3.0	3.0-4.0	---	---	None	---	None
		February	2.0-3.0	3.0-4.0	---	---	None	---	None
		March	2.0-3.0	3.0-4.0	---	---	None	---	None
		December	2.0-3.0	3.0-4.0	---	---	None	---	None
TeC:									
Tellico-------------------------	B	Jan-Dec	---	---	---		None	---	None
TeE3:									
Tellico------------------	B	Jan-Dec	---	---	---	---	None	---	None
ThF:									
Tellico------------------------	B	Jan-Dec		---	---	---	None	---	None
Red Hills----------------------	B	Jan-Dec	---	---		---	None	---	None
TkD:									
Tellico------------------	B	Jan-Dec	---	---	---	---	None	---	None
Steekee--------------------------	C	Jan-Dec	---	---		---	None	---	None
To:									
Toccoa-------------------	B								
		January	4.0-6.0	>6.0	---	---	None	Very brief	Occasional
		February	4.0-6.0	>6.0	---	---	None	Very brief	Occasional
		March	4.0-6.0	>6.0	---	---	None	Very brief	Occasional
		April	4.0-6.0	>6.0	---	---	None	---	None
		December	4.0-6.0	>6.0	---	---	None	Very brief	Occasional

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table: Upper limit	Water table: Lower limit	Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
TwB2:									
Townley	C	Jan-Dec	---	---	---	---	None	---	None
Coile	D	Jan-Dec	---	---	---	---	None	---	None
UDC:									
Udorthents.									
Urban land.									
UnE:									
Unicoi	C	Jan-Dec	---	---		---	None	---	None
UoG:									
Unicoi	C	Jan-Dec	---	---	---	---	None		None
Rock outcrop.									
URC:									
Urban land.									
UU:									
Urban land		Jan-Dec	---	---	---	---	None	Very brief	Rare
Udorthents	C								
		January	1.0-6.0	>6.0	---	---	None	Very brief	Rare
		February	1.0-6.0	>6.0	---	---	None	Very brief	Rare
		March	1.0-6.0	>6.0	---	---	None	Very brief	Rare
		April	1.0-6.0	>6.0	---	---	None	Very brief	Rare
		May	1.0-6.0	>6.0	---	---	None	Very brief	Rare
		June	---	---	---	---	None	Very brief	Rare
		July	---	---	---	---	None	Very brief	Rare
		August			---	---	None	Very brief	Rare
		September	---	---	---		None	Very brief	Rare
		October	1.0-6.0	>6.0	---	---	None	Very brief	Rare
		November	1.0-6.0	>6.0	---	---	None	Very brief	Rare
		December	1.0-6.0	>6.0	---	---	None	Very brief	Rare
WaB2:									
Waynesboro	B	Jan-Dec	---	---	---	---	None	---	None
WaC2:									
Waynesboro	B	Jan-Dec	---	---	---	---	None	---	None
WbB2:									
Waynesboro	B	Jan-Dec	---	---	---	---	None	---	None
WbC2:									
Waynesboro	B	Jan-Dec	---	---	---	---	None	---	None
WNC:									
Waynesboro	B	Jan-Dec	---	---	---	---	None	---	None
Urban land.									
WoB:									
Wolftever	C								
		January	2.1-3.4	>6.0	---	---	None	Very brief	Occasional
		February	2.1-3.4	>6.0		---	None	Very brief	Occasional
		March	2.1-3.4	>6.0	---		None	Very brief	Occasional
		April	3.4-6.0	>6.0	---	---	None	Very brief	Occasional
		December	2.1-3.4	>6.0	---	---	None	Very brief	Occasional

Table 17.- Water Features Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
WoC:									
Wolftever-----------------	C								
		January	2.1-3.4	>6.0	-		None	---	None
		February	2.1-3.4	>6.0	---		None	---	None
		March	2.1-3.4	>6.0	-	---	None	---	None
		December	2.1-3.4	>6.0	---	---	None	---	None

Table 18 --Classification of the Soils

(An asterisk in the first column indicates a taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series.)

Soil name	Family or higher taxonomic class
Alcoa	Fine, parasesquic, thermic Rhodic Paleudults
Apison	Fine-loamy, siliceous, semiactive, thermic Typic Hapludults
Arkaqua	Fine-loamy, mixed, active, mesic Fluvaquentic Dystrudepts
Atkins	Fine-loamy, mixed, active, acid, mesic Typic Fluvaquents
Bellamy	Fine-loamy, siliceous, semiactive, thermic Fragiaquic Hapludults
Bloomingdale	Fine, mixed, semiactive, nonacid, thermic Typic Endoaquepts
Bodine	Loamy skeletal, siliceous, semiactive, thermic Typic Paleudults
Bradyville	Fine, mixed, semiactive, thermic Typic Hapludalfs
Cataska	Loamy-skeletal, mixed, semiactive, mesic, shallow Typic Dystrudepts
Coghill	Fine, mixed, semiactive, thermic Typic Hapludults
Coile	Loamy-skeletal, mixed, semiactive, thermic, shallow Ruptic-Ultic Dystrudepts
Collegedale	Fine, mixed, semiactive, thermic Typic Paleudults
Corryton	Fine, mixed, semiactive, thermic Typic Hapludults
Decatur	Fine, kaolinitic, thermic Rhodic Paleudults
Dewey	Fine, kaolinitic, thermic Typic Paleudults
Emory	Fine-silty, siliceous, active, thermic Fluventic Humic Dystrudepts
Etowah	Fine-loamy, siliceous, semiactive, thermic Typic Paleudults
Fullerton	Fine, kaolinitic, thermic Typic Paleudults
Hamblen	Fine-loamy, siliceous, semiactive, thermic Fluvaquentic Eutrudepts
Harmiller	Fine-loamy, siliceous, semiactive, mesic Typic Hapludults
Keener	Fine-loamy, siliceous, semiactive, mesic Typic Hapludults
*Lostcove	Loamy-skeletal, siliceous, active, mesic Typic Hapludults
McCamy	Fine-loamy, siliceous, semiactive, mesic Typic Hapludults
Minvale	Fine-loamy, siliceous, subactive, thermic Typic Paleudults
*Needmore	Fine, mixed, active, mesic Ultic Hapludalfs
Neubert	Fine-loamy, siliceous, semiactive, thermic Oxyaquic Eutrudepts
Nonaburg	Clayey, mixed, active, thermic, shallow Inceptic Hapludalfs
Pettyjon	Fine loamy, mixed, active, thermic Dystric Fluventic Eutrudepts
Red Hills	Fine-loamy, parasesquic, thermic Humic Dystrudepts
Rockdell	Loamy-skeletal, siliceous, active, thermic Dystric Fluventic Eutrudepts
Shady	Fine-loamy, mixed, subactive, thermic Typic Hapludults
Steadman	Fine-silty, mixed, active, thermic Fluvaquentic Eutrudepts
Steekee	Loamy, parasesquic, thermic, shallow Ruptic-Ultic Dystrudepts
Sunlight	Loamy-skeletal, mixed, semiactive, thermic, shallow Inceptic Hapludults
Tasso	Fine-loamy, siliceous, semiactive, thermic Fragic Paleudults
Tellico	Fine, parasesquic, thermic Typic Rhodudults
Toccoa	Coarse-loamy, mixed, active, nonacid, thermic Typic Udifluvents
Townley	Fine, mixed, semiactive, thermic Typic Hapludults
Udorthents	Udorthents
Unicoi	Loamy-skeletal, mixed, semiactive, mesic Lithic Dystrudepts
Waynesboro	Fine, kaolinitic, thermic Typic Paleudults
Wolftever	Fine, mixed, semiactive, thermic Aquic Hapludults

Table 19.--Geologic Systems, Formations, and Predominant Soils

Period/Epoch	Million years before present	Geologic formation or soil parent material	Description of parent material	Common soil series
Quaternary/ Holocene	0.0 to 0.01	Unconsolidated alluvium	Sand, silt, and clay with some gravel and cobbles that washed from upland slopes; some materials moved long distances by rivers and streams	Atkins, Bloomingdale, Neubert, Hamblen, Steadman, Toccoa, Shady
Quaternary/ Pleistocene	0.01 to 1.8	Unconsolidated alluvium and colluvium	Sand, silt, and clay that were deposited by ancient streams and rivers or materials that were moved by gravity or mass movements; many times, materials deposited by colluvial forces contain rock fragments that are cobble, stone, or boulder sized	Etowah, Waynesboro, Decatur, Lostcove, Keener, Tasso, Minvale, Dewey Dewey (upper part of the profile), Fullerton (upper part of the profile) Most of these soils overlie Conasauga Shale in the Ridges and Valleys area of the county; in the Blue Ridge area of the county, these soils overlie the Sandsuck Shale
Ordovician (Middle)	460 to 500	Ottosee Shale	Yellow, weathered shale and shaley limestone; some quartzose limestone lenses; some crystalline limestone (USGS 1952b)	Needmore, Nonaburg
	(Chickamauga Supergroup)	Holstone Limestone	Red and blue crystalline quartzose limestone (USGS 1952b)	Tellico, Skeekee, Red Hills, Coghill
		Athens Shale	Yellow, weathered, calcareous shale and shaley limestone (USGS 1952a)	Needmore, Nonaburg
		Lenoir Limestone	Blue argillaceous limestone, red near base (USGS 1952b)	Tellico, Skeekee, Red Hill, Coghill, Bradyville
Ordovician (Early)	485 to 500	Mascot Dolomite	Gray, well bedded dolomite that has layers of limestone; sandy layers near base (USGS 1952b)	Fullerton, Dewey, Bodine
	(Knox Group)	Kingsport Formation	Gray, well bedded dolomite that has some limestone in the lower part (USGS 1952b); well bedded dolomite that has much chert in residuum (USGS 1952b)	Fullerton, Dewey

Table 19. Geologic Systems, Formations, and Predominant Soils--Continued

Period/Epoch	Million years before present	Geologic formation or soil parent material	Description of parent material	Common soil series
Ordovician (Early)--cont.	(Knox Group)--cont.	Longview Dolomite	Well bedded dolomite that has much chert in residuum (USGS 1952b)	Bodine, Fullerton
		Chepultepec Dolomite	Gray, well bedded dolomite that has sandy layers near the base (USGS 1952b)	Fullerton, Dewey
Cambrian (Late)	500 to 515	Copper Ridge Dolomite	Gray, tabular, mostly massive dolomite; much chert in residuum (USGS 1952b)	Bodine, Fullerton, Dewey
Cambrian (Middle)	515 to 540	Conasauga Group	Greenish, noncalcareous shale that has a few lenses of blue limestone; includes Maynardville Limestone in the upper part (blue and gray limestone and dolomite) (USGS 1952b)	Coile, Townley, Apison, Corryton
	515 to 570	Rome Formation	Heterogeneous mixture of yellow and brown sandstone; red, purple, and green siltstone; and silty shale that has thin layers of limestone and dolomite (USGS 1952b)	Sunlight, Apison
Cambrian (Early)	540 to 570	Nebo Sandstone (part of the Erwin Formation)	Quartz cemented sandstone (quartzite)(USGS and Tennessee Division of Geology 1953)	McCamy, Unicoi
		Nichols Shale (part of the Hampton Formation)	Dark, silty and sandy shale; some argillaceous shale; commonly well laminated with mica flakes and detridal mica (USGS and Tennessee Division of Geology 1953)	Cataska, Harmiller
		Cochran Conglomerate (part of the Unicoi Formation)(the Unicoi Formation and Cochran Conglomerate make up the Chilhowee Group)	Highly feldspathic sandstone and conglomerate (USGS and Tennessee Division of Geology 1953)	Unicoi, Harmiller

Table 19.--Geologic Systems, Formations, and Predominant Soils--Continued

Period/Epoch	Million years before present	Geologic formation or soil parent material	Description of parent material	Common soil series
Precambrian/ Late Proterozic	570 +	Sandsuck Shale (Ocoee series with Pigeon Siltstone)	Silty shale with some coarse grained rocks that have pebbles and calcareous cement with large slabs of limestone, slate, and calcareous sandstone (USGS and Tennessee Division of Geology 1953)	Mostly buried with colluvium Lostcove and Keener in colluvium overlying Sandsuck Shale

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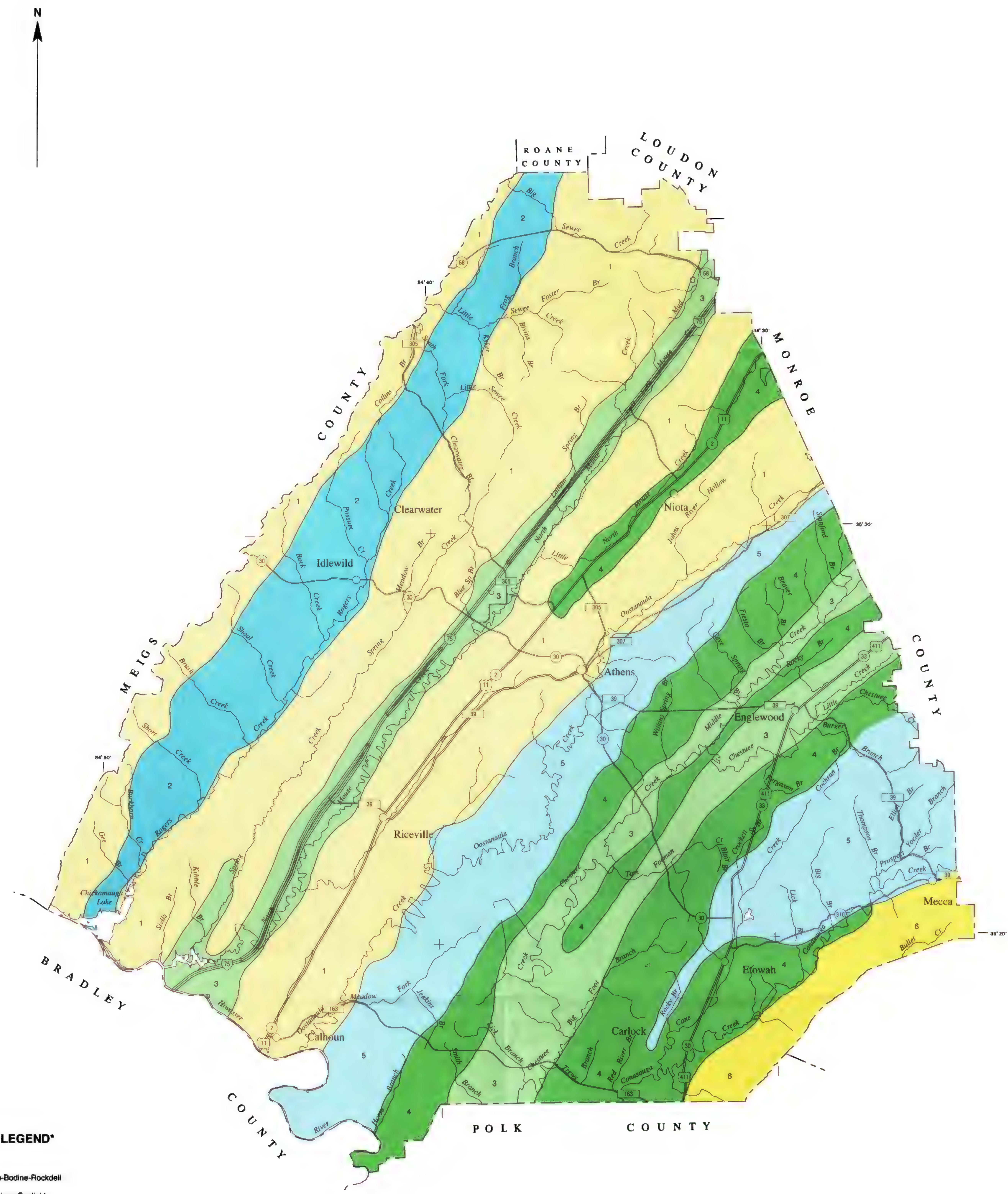


SOIL LEGEND*

1	Fullerton-Bodine-Rockdell
2	Coile-Apison-Sunlight
3	Coile-Corryton-Hamblen-Townley
4	Fullerton-Dewey-Waynesboro
5	Tellico-Red Hills-Nonaburg
6	Lostcove-Unicoi-Cataska

*The units on this legend are described in the text under the heading "General Soil Map Units."

Compiled 1999

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
UNIVERSITY OF TENNESSEE AGRICULTURAL EXPERIMENT STATION
TENNESSEE DEPARTMENT OF AGRICULTURE
McMINN COUNTY BOARD OF COMMISSIONERS

GENERAL SOIL MAP

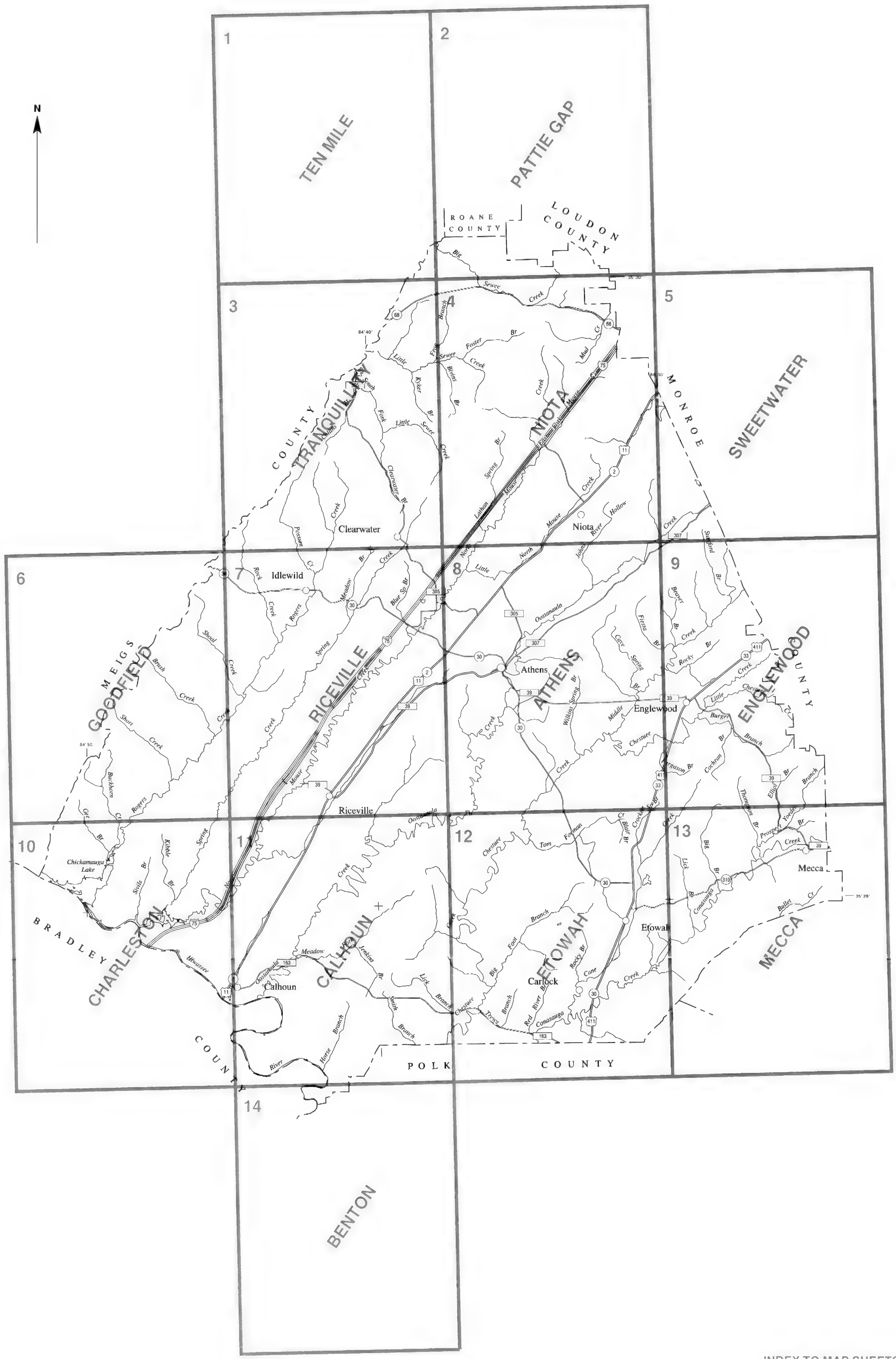
MCMINN COUNTY, TENNESSEE

Scale 1:126720

1 0 1 2 3
MILES

1 0 1 2 3 4 5 6
KILOMETERS

Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.



INDEX TO MAP SHEETS
MCMINN COUNTY, TENNESSEE
Scale 1:126720
MILES
KILOMETERS

SOIL LEGEND

Map symbols consist of a combination of letters and numbers. The first two letters are listed alphabetically and represent the kind of soil or soils in the map unit The first letter is always an upper case letter. In most map units, the second letter is a lower case letter Map symbols that have an upper case second letter are miscellaneous areas or complexes of soils and miscellaneous areas. A third capital letter indicates the slope class. Symbols without a slope letter represent nearly level soils or miscellaneous areas. A final number of 2 following the slope letter indicates that the soil is moderately eroded and a number 3 indicates that it is severely eroded

SYMBOL	NAME
AaB2	Alcoa loam, 2 to 5 percent slopes, eroded
AaC2	Alcoa loam, 5 to 12 percent slopes eroded
AaD2	Alcoa loam, 12 to 25 percent slopes, eroded
AcF	Apison-Coile complex, 25 to 60 percent slopes
AsC	Apison-Sunlight complex, 5 to 12 percent slopes
AsF	Apison-Sunlight complex, 25 to 60 percent slopes, very rocky
At	Atkins-Arkaqua complex, frequently flooded
BeB	Bellamy silt loam, 1 to 5 percent slopes
Bm	Bloomingdale silty clay loam, occasionally flooded
BoC2	Bodine gravelly silt loam, 5 to 12 percent slopes, eroded
BoD2	Bodine gravelly silt loam, 12 to 25 percent slopes, eroded
BoF2	Bodine gravelly silt loam, 25 to 60 percent slopes, eroded
BrE	Bradyville-Rock outcrop complex, 5 to 25 percent slopes
BrF	Bradyville-Rock outcrop complex, 25 to 50 percent slopes
CaF	Cataska very channery loam, 35 to 65 percent slopes, very rocky
CaG	Cataska very channery loam, 65 to 90 percent slopes, very rocky
CgC	Coghill Apison complex, 5 to 12 percent slopes
CgD	Coghill-Apison complex, 12 to 25 percent slopes
CnC2	Coile silt loam, 5 to 12 percent slopes, eroded
CnD2	Coile silt loam, 12 to 25 percent slopes, eroded
CnE3	Coile silt loam, 5 to 35 percent slopes, gullied
CoC2	Collegedale silt loam, 5 to 12 percent slopes, eroded
CrB	Corryton Needmore complex, 2 to 5 percent slopes, rocky
CtB2	Corryton-Townley complex, 2 to 5 percent slopes, eroded
CtC2	Corryton-Townley complex, 5 to 12 percent slopes, eroded
CUC	Corryton Urban land complex, 2 to 12 percent slopes
DcB2	Decatur silt loam, 2 to 5 percent slopes, eroded
DcC2	Decatur silt loam, 5 to 12 percent slopes, eroded
DcD2	Decatur silt loam, 12 to 20 percent slopes, eroded
DeB	Dewey silt loam, 2 to 5 percent slopes
DwC2	Dewey silty clay loam, 5 to 12 percent slopes, eroded
DwD2	Dewey silty clay loam, 12 to 25 percent slopes, eroded
DX	Dumps, landfills
DY	Dumps, pulpwood processing waste
Ea	Emory silt loam, 0 to 4 percent slopes, occasionally flooded
Eo	Etowah loam, occasionally flooded, overwash
EtB	Etowah loam, 2 to 5 percent slopes
EtC	Etowah loam, 5 to 12 percent slopes
FcB2	Fullerton clay loam, 2 to 5 percent slopes, eroded
FgC2	Fullerton gravelly silt loam, 5 to 12 percent slopes, eroded
FgD2	Fullerton gravelly silt loam, 12 to 25 percent slopes, eroded
FgE3	Fullerton gravelly silt loam, 5 to 35 percent slopes, gullied
FgF2	Fullerton gravelly silt loam, 25 to 60 percent slopes, eroded
FRC	Fullerton-Urban land complex, 2 to 12 percent slopes
FRD	Fullerton-Urban land complex, 12 to 25 percent slopes
Ha	Hamblen silt loam, occasionally flooded
HrC	Harmiller loam, 5 to 12 percent slopes

SYMBOL	NAME
KeC	Keener-Lostcove complex, 3 to 12 percent slopes, very stony
KeF	Keener Lostcove complex, 35 to 50 percent slopes, very stony
LoD	Lostcove gravelly loam, 12 to 20 percent slopes, stony
LoE	Lostcove gravelly loam, 20 to 35 percent slopes, very stony
McD	McCamy loam, 12 to 25 percent slopes, rocky
MfF	Minvale and Fullerton soils, 25 to 45 percent slopes
MnC	Minvale gravelly silt loam, 5 to 12 percent slopes
MnD	Minvale gravelly silt loam, 12 to 25 percent slopes
NcC	Needmore-Corryton complex, 5 to 12 percent slopes
Ne	Neubert loam, frequently flooded
NnC	Nonaburg Needmore complex, 5 to 12 percent slopes, very rocky
NnD	Nonaburg Needmore complex, 12 to 25 percent slopes, very rocky
NoF	Nonaburg-Needmore-Rock outcrop complex, 25 to 60 percent slopes
Pe	Pettyjon silty clay loam, occasionally flooded
PM	Pits Mines, and Dumps
RhF	Red Hills and Steekee soils, 35 to 80 percent slopes, rocky
Rk	Rockdell gravelly loam, occasionally flooded
RoF	Rock outcrop-Bradyville complex, 5 to 50 percent slopes
ShB	Shady loam, 2 to 5 percent slopes
ShC	Shady loam, 5 to 12 percent slopes
St	Steadman silty clay loam, frequently flooded
SuC	Sunlight-Apison complex, 5 to 12 percent slopes, very rocky
SuD	Sunlight Apison complex, 12 to 25 percent slopes, very rocky
TaB	Tasso loam, 2 to 5 percent slopes
TaC	Tasso loam, 5 to 12 percent slopes
TeC	Tellico loam, 5 to 12 percent slopes
TeE3	Tellico loam, 5 to 35 percent slopes, gullied
ThF	Tellico-Red Hills complex, 25 to 65 percent slopes, rocky
TkD	Tellico-Steekee complex, 12 to 25 percent slopes
To	Toccoa loam, occasionally flooded
TwB2	Townley-Coile complex, 2 to 5 percent slopes, eroded
UDC	Udorthents-Urban land complex, 2 to 12 percent slopes
UnE	Unicoi gravelly sandy loam, 10 to 35 percent slopes, very rocky
UoG	Unicoi-Rock outcrop complex, 50 to 120 percent slopes
URC	Urban land, 2 to 12 percent slopes
UU	Urban land-Udorthents complex, rarely flooded
W	Water
WaB2	Waynesboro clay loam, 2 to 5 percent slopes, eroded
WaC2	Waynesboro clay loam, 5 to 12 percent slopes, eroded
WbB2	Waynesboro silt loam, 2 to 5 percent slopes, eroded
WbC2	Waynesboro silt loam, 5 to 12 percent slopes, eroded
WNC	Waynesboro-Urban land complex, 2 to 12 percent slopes
WoB	Wolftever silt loam, 1 to 5 percent slopes, occasionally flooded
WoC	Wolftever silt loam, 5 to 12 percent slopes

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES

- County or parish
- Field sheet matchline and neatline

GEOGRAPHIC COORDINATE TICK

ROAD EMBLEM & DESIGNATIONS

- Interstate
- Federal
- State

RAILROAD (label only)

HYDROGRAPHIC FEATURES

Drainage end

Unclassified stream

SPECIAL SYMBOLS FOR SOIL SURVEY

SOIL DELINEATIONS AND SYMBOLS Bm Ha

STANDARD LANDFORM AND MISCELLANEOUS SURFACE FEATURES

- Gravelly spot
- Mine or quarry
- Rock outcrop (includes sandstone and shale)
- Sinkhole
- Wet spot

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MCMINN COUNTY, TENNESSEE
TEN MILE QUADRANGLE
SHEET NUMBER 1 OF 14

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Dept. of Interior, Geological Survey, from 1992 aerial photography. Hydrography information was acquired from the Natural Resources Conservation Service.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

MCMINN COUNTY, TENNESSEE NO. 1

1	2	3
4		5
6	7	8

1 RODDY
2 ROCKWOOD
3 BACON GAP
4 SPRING CITY
5 PATTIE GAP
6 DECATUR
7 TRANQUILLITY
8 NIOTA

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MCMINN COUNTY, TENNESSEE
PATTIE GAP QUADRANGLE
SHEET NUMBER 2 OF 14

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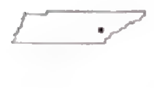
NORTH



QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

MCMINN COUNTY, TENNESSEE NO. 2

1	2	3
4		5
6	7	8

1 ROCKWOOD
2 BACON GAP
3 CAVE CREEK
4 TEN MILE
5 PHILADELPHIA
6 TRANQUILLITY
7 NIOTA
8 SWEETWATER

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PATTIE GAP, TENNESSEE
7.5 MINUTE SERIES
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UNITED STATES
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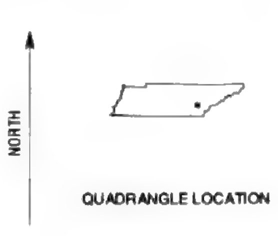
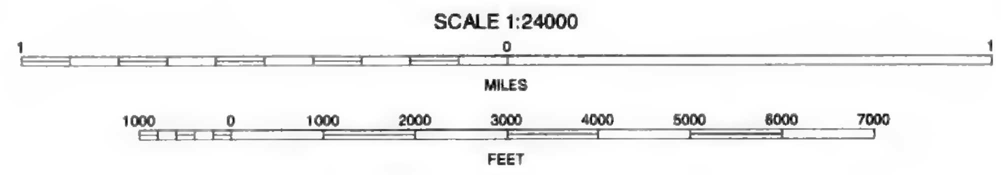


QUADRANGLE LOCATION

SCALE 1:24000



MCMINN COUNTY, TENNESSEE NO. 3

1	2	3
4		5
6	7	8

1 SPRING CITY
2 TEN MILE
3 PATTIE GAP
4 DECATUR
5 NIOTA
6 GOODFIELD
7 RICEVILLE
8 ATHENS

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MCMINN COUNTY, TENNESSEE
NIOTA QUADRANGLE
SHEET NUMBER 4 OF 14

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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

MCMINN COUNTY, TENNESSEE NO. 4

1	2	3
4		5
6	7	8

1 TEN MILE
2 PATTIE GAP
3 PHILADELPHIA
4 TRANQUILLITY
5 SWEETWATER
6 RICEVILLE
7 ATHENS
8 ENGLEWOOD

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NIOTA, TENNESSEE
7.5 MINUTE SERIES
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UNITED STATES
DEPARTMENT OF AGRICULTURE
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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

MCMINN COUNTY, TENNESSEE NO. 5

1	2	3
4		5
6	7	8

1 PATTIE GAP
2 PHILADELPHIA
3 LOUDON
4 NIOTA
5 MADISONVILLE
6 ATHENS
7 ENGLEWOOD
8 MOUNT VERNON

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SWEETWATER, TENNESSEE
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UNITED STATES
DEPARTMENT OF AGRICULTURE
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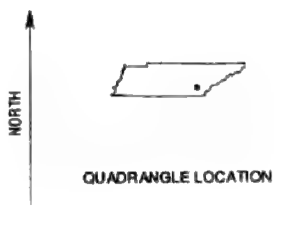

SCALE 1:24000

MILES

FEET

KILOMETERS

MCMINN COUNTY, TENNESSEE NO. 6

1	2	3
4		5
6	7	8

1 EVENSVILLE
2 DECATUR
3 TRANQUILLITY
4 BIG SPRING
5 RICEVILLE
6 BIRCHWOOD
7 CHARLESTON
8 CALHOUN

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GOODFIELD, TENNESSEE
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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MCMINN COUNTY, TENNESSEE
RICEVILLE QUADRANGLE
SHEET NUMBER 7 OF 14

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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

MCMINN COUNTY, TENNESSEE NO. 7

1 DECATUR
2 TRANQUILLITY
3 NIOTA
4 GOODFIELD
5 ATHENS
6 CHARLESTON
7 CALHOUN
8 ETOWAH

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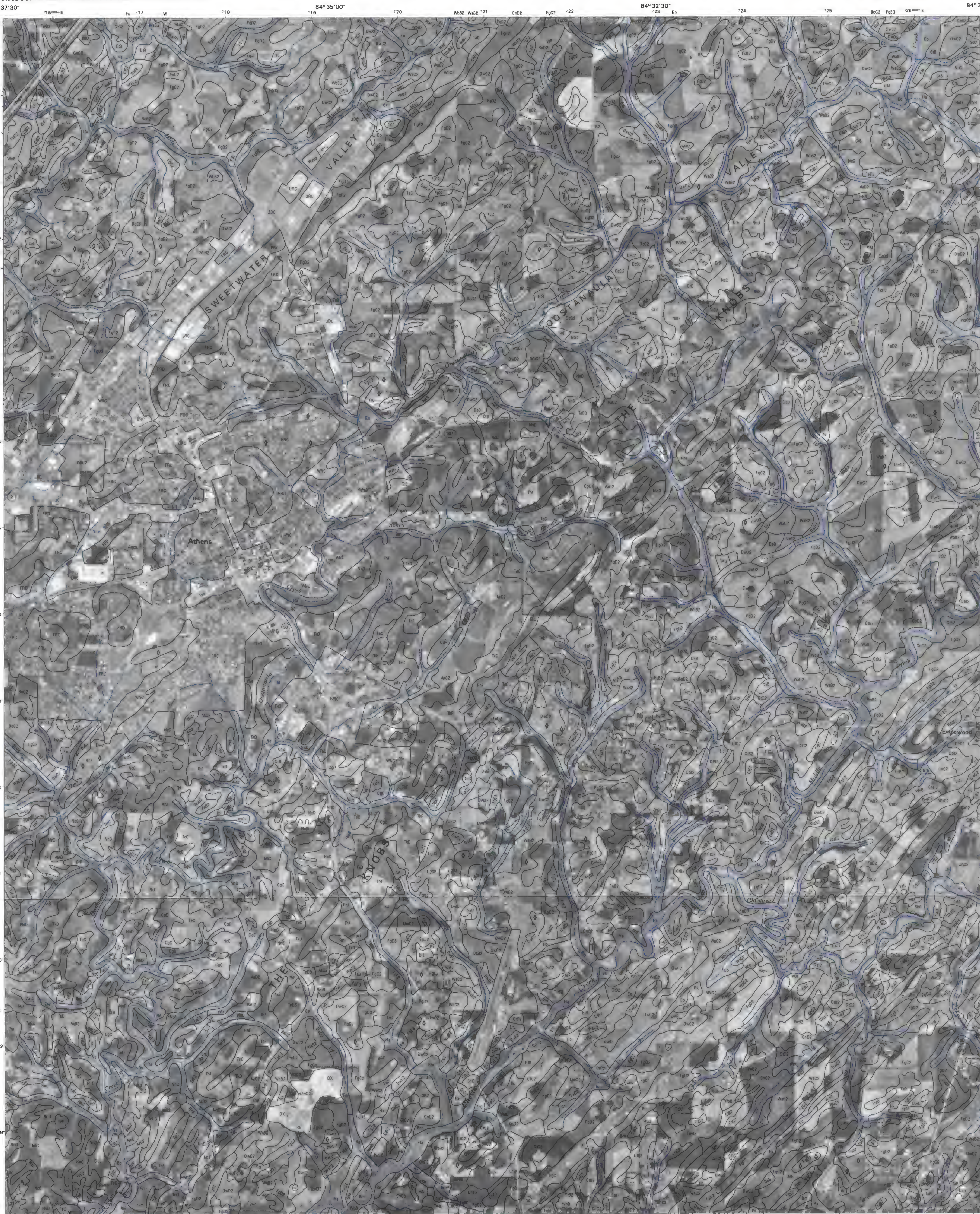
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MCMINN COUNTY, TENNESSEE
ATHENS QUADRANGLE
SHEET NUMBER 8 OF 14



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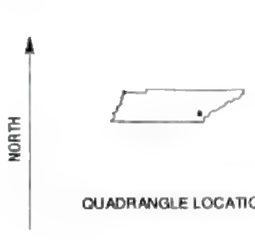
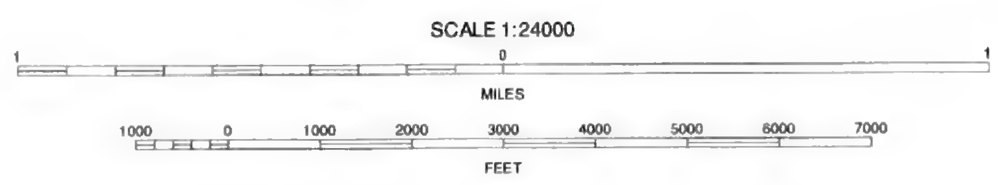


QUADRANGLE LOCATION



MCMINN COUNTY, TENNESSEE NO. 8

1	2	3	1 TRANQUILLITY
			2 NIOTA
			3 SWEETWATER
4		5	4 RICEVILLE
			5 ENGLEWOOD
			6 CALHOUN
6	7	8	7 ETOWAH
			8 MECCA

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ATHENS, TENNESSEE
7.5 MINUTE SERIES
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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MCMINN COUNTY, TENNESSEE
ENGLEWOOD QUADRANGLE
SHEET NUMBER 9 OF 14

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

MCMINN COUNTY, TENNESSEE NO. 9

1	2	3
4		5
6	7	8

1 NIOTA
2 SWEETWATER
3 MADISONVILLE
4 ATHENS
5 MOUNT VERNON
6 ETOWAH
7 MECCA
8 TELLICO PLAINS

INDEX TO ADJOINING 7.5 MAPS

ENGLEWOOD, TENNESSEE
7.5 MINUTE SERIES
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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MCMINN COUNTY, TENNESSEE
CHARLESTON QUADRANGLE
SHEET NUMBER 10 OF 14

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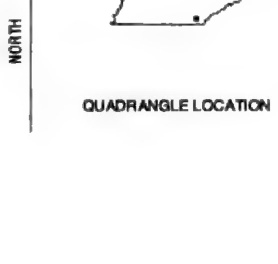
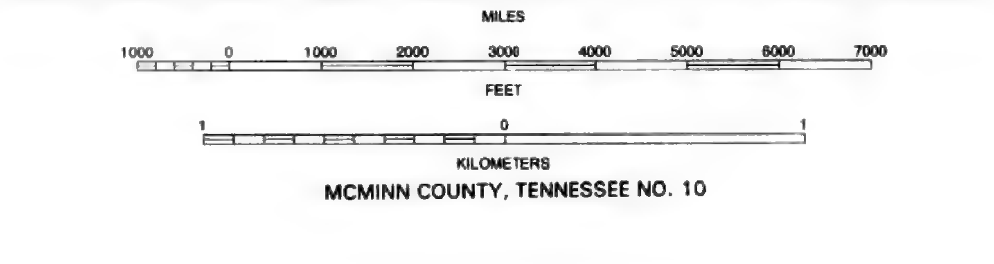


QUADRANGLE LOCATION



MCMINN COUNTY, TENNESSEE NO. 10

1	2	3
4		5
6	7	8

1 BIG SPRING
2 GOODFIELD
3 RICEVILLE
4 BIRCHWOOD
5 CALHOUN
6 SOUTH CLEVELAND
7 EAST CLEVELAND
8 BENTON

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CHARLESTON, TENNESSEE
7.5 MINUTE SERIES
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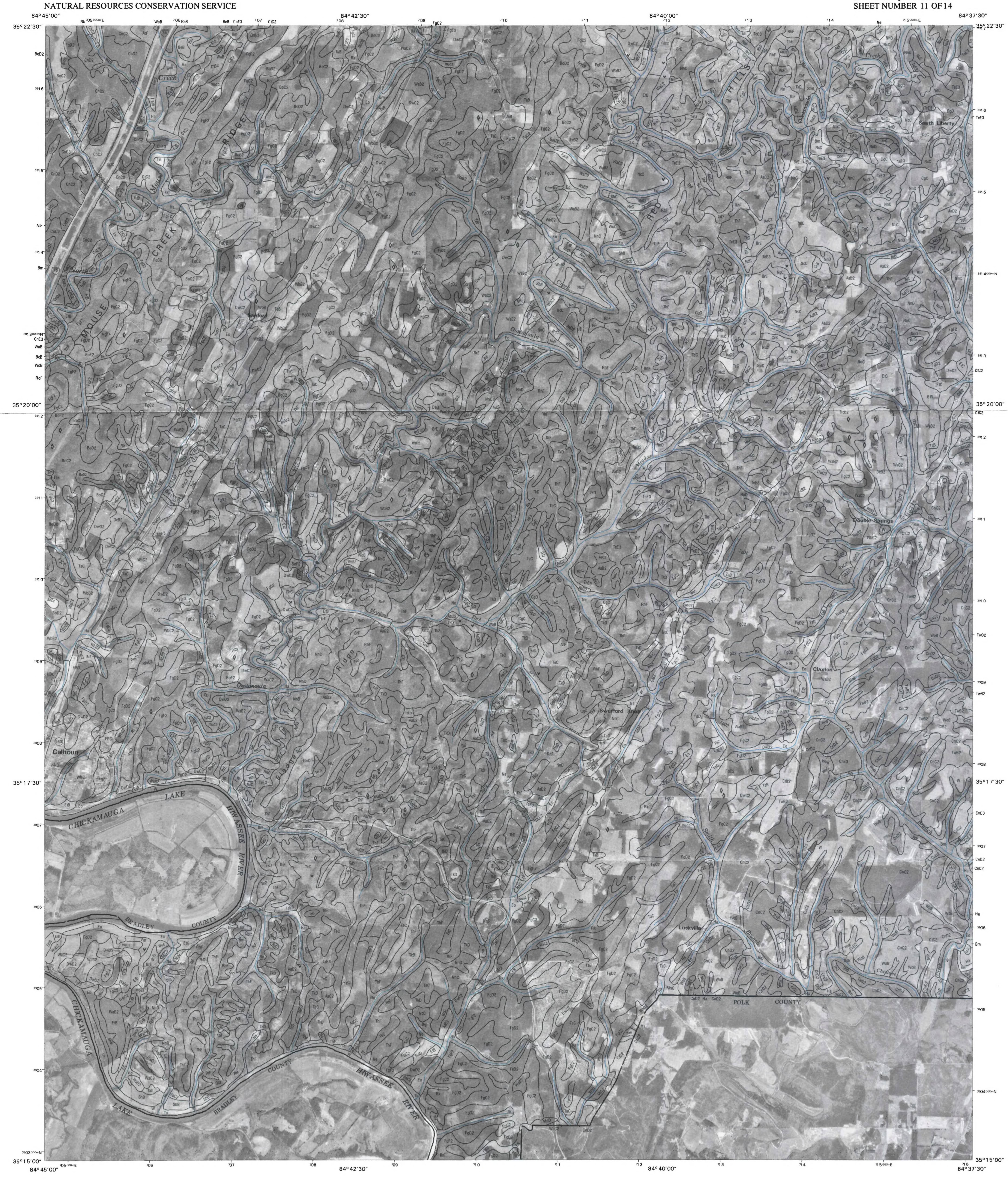
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MCMINN COUNTY, TENNESSEE
CALHOUN QUADRANGLE
SHEET NUMBER 11 OF 14



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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

MCMINN COUNTY, TENNESSEE NO. 11

1	2	3
4		5
6	7	8

1 GOODFIELD
2 RICEVILLE
3 ATHENS
4 CHARLESTON
5 ETOWAH
6 EAST CLEVELAND
7 BENTON
8 OSWALD DOME

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CALHOUN, TENNESSEE
7.5 MINUTE SERIES
SHEET NUMBER 11 OF 14

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MCMINN COUNTY, TENNESSEE
ETOWAH QUADRANGLE
SHEET NUMBER 12 OF 14

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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

MCMINN COUNTY, TENNESSEE NO. 12

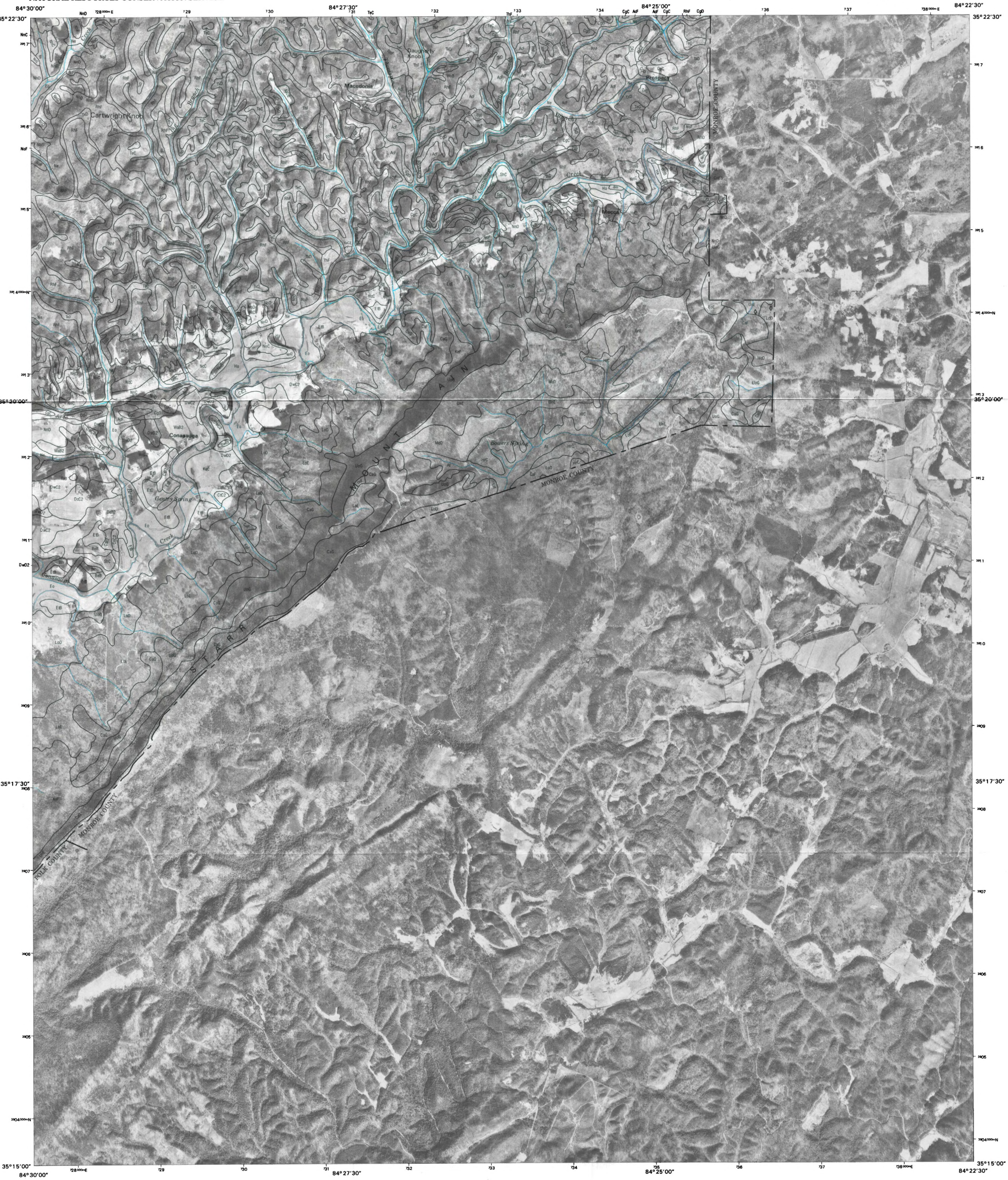
1	2	3	1 RICEVILLE
			2 ATHENS
4		5	3 ENGLEWOOD
			4 CALHOUN
6	7	8	5 MECCA
			6 BENTON
			7 OSWALD DOME
			8 MCFARLAND

INDEX TO ADJOINING 7.5 MAPS

ETOWAH, TENNESSEE
7.5 MINUTE SERIES
SHEET NUMBER 12 OF 14

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MCMINN COUNTY, TENNESSEE
MECCA QUADRANGLE
SHEET NUMBER 13 OF 14



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Dept. of Interior, Geological Survey, from 1992 aerial photography. Hydrography information was acquired from the Natural Resources Conservation Service.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

MCMINN COUNTY, TENNESSEE NO. 13

1	2	3
4		5
6	7	8

1 ATHENS
2 ENGLEWOOD
3 MOUNT VERNON
4 ETOWAH
5 TELLICO PLAINS
6 OSWALD DOME
7 MCFARLAND
8 FARNER

INDEX TO ADJOINING 7.5 MAPS

MECCA, TENNESSEE
7.5 MINUTE SERIES
SHEET NUMBER 13 OF 14

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

MCMINN COUNTY, TENNESSEE NO. 14

1	2	3
4		5
6	7	8

1 CHARLESTON
2 CALHOUN
3 ETOWAH
4 EAST CLEVELAND
5 OSWALD DOME
6 FELKER
7 PARKSVILLE
8 CANEY CREEK

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BENTON, TENNESSEE
7.5 MINUTE SERIES
SHEET NUMBER 14 OF 14